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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

Editorial Staff

Geo. S. Demuth and E. R. Root
Editors

A. I. Root
Editor Home Dept.

H. H. Root
Assistant Editor

H. G. Rowe
M'n'g Editor

Honey Wanted Honey

We are in the market for both comb and extracted. Send sample of extracted, state how put up, with lowest price, delivered Cincinnati. Comb honey, state grade and how packed, with lowest price, delivered Cincinnati. We are always in the market for white honey, if price is right.

C. H. W. Weber & Co.

2163-65-67 Central Av.,

Cincinnati, Ohio

HONEY CANS

Several carloads just received at our Ogden and Idaho Falls warehouses. We also manufacture shipping cases and beehives. Special prices on request. "Everything in Bee Supplies." Prompt shipments.

SUPERIOR HONEY CO., OGDEN, UTAH

(Manufacturers of Weed Process Foundation.)

Indianapolis Can Give You Some Real Beekeeping Service

WE SHIP YOUR ORDER THE SAME DAY IT IS RECEIVED. LET US GIVE YOU SOME OF THIS SERVICE. CATALOG FOR THE ASKING. WRITE FOR PRICES ON BEESWAX.

THE A. I. ROOT COMPANY

873 Massachusetts Avenue, Indianapolis, Ind.

Have You Sold Your Honey?

We are buying COMB and EXTRACTED honey. Send us a sample and tell us what you have to offer. Name your most interesting price delivered to Cincinnati. Remittance goes forward the day shipment is received.

Old Comb—Don't forget we render wax from your old combs and cappings. Write us for shipping tags.

* * * * *

We Offer You Friction-Top Cans

2½-lb. cans.....	\$ 4.25 per 100	\$.50 per 10
5 -lb. cans.....	8.00 per 100	1.00 per 10
10 -lb. cans.....	12.00 per 100	1.40 per 10

1-lb. Round Screw Top Jars, 2 doz. in shipping case,

10-case lots.....\$1.60 per case.

Prices cash with order, f. o. b. Cincinnati.

* * * * *

THE FRED W. MUTH CO.

Pearl and Walnut Streets.

Cincinnati, Ohio.

This Letter Is For You

Dear Mr. Beekeeper:

We want to thank you for your patronage during the last season. We have had a fine year, and trust you have had the same. We have done our best to try and please you in every respect. Have filled most orders the day received, and have tried to carry out the real meaning of "SERVICE."

We are hoping to have your patronage next season, when we will endeavor to give even better SATISFACTION than heretofore.

Here's hoping for a fine Season next year.

Sincerely,

F. A. SALISBURY,

1631 W. Genesee St.,

Syracuse, New York.

HONEY MARKETS

U. S. Government Market Reports.

SHIPPING POINT INFORMATION (FIRST HALF OF SEPTEMBER.)

CALIFORNIA POINTS.—Demand is improving somewhat, altho prices show little change, and supplies of white honey are cleaning up rapidly. The crop yields up to Sept. 1 were much below average, being 38% of last year and about 60% of the average. The yield from alfalfa was very poor, and low production figures from the citrus and sage counties reveal a disappointing output there. Carloads f. o. b. usual terms at loading points, white orange blossom 10-11½c, light amber sage 7-8c, light amber alfalfa 5½-6c per lb., white sage 10-11c. Beeswax, demand light, market weak. Growers receiving 20-22c per lb.

INTERMOUNTAIN REGION.—Shipments are increasing under an improved demand. A half crop in several of the more important producing areas is looked for. Northeastern Idaho, however, reports a good yield. Summer frosts in Utah, Nevada, and New Mexico, excessive rains in some areas, and widespread damage in many States by alfalfa weevils were largely responsible for the curtailed output. In the southern part of the region, prospects are good for a late nectar flow. In Colorado, Utah, Idaho, Nevada, and New Mexico, white alfalfa and sweet clover have been selling at 7-8½c per lb. in carlots, with less than carlots as high as 12c per lb. Large lot sales of light amber stock ranged 5-6c. No. 1 alfalfa comb is quoted \$4.80-6.00 per 24-section case. In Arizona cotton and alfalfa mixed has sold at 5½-6c for white and 4¾-5c for amber. Production in this State was curtailed 20-25% by drought.

WASHINGTON.—Heavy losses of bees are reported in the Yakima fruit district from spray poisoning, thousands of colonies being weakened to non-productiveness, and many killed out completely. American foul brood has been much in evidence. White extracted honey is quoted around 11c per lb.

TEXAS.—Notwithstanding severe summer droughts, a better than average crop has been gathered in Texas, as a result of early favoring conditions. The dry weather, however, has reduced chances for a good fall flow. Some bees are starving, but most colonies are in good condition. White extracted honey has averaged 8½c per lb. in large lots, with clunk quoted at 12½c per lb.

CENTRAL STATES.—Yields in the white clover belt have generally been above the average, especially in Michigan, Ohio, and Indiana. They are better than last year east of the Mississippi River, and poorer west of it. Commercial producers have on the whole had a good season. Prospects for clover for next year are not so encouraging, as rain is needed in large amounts to start the clover again, which has suffered severely from drought in much of the area. Recent rains have been sufficient in the eastern section to help the aster and other fall plants from which a good flow is expected. There has been an unusual amount of American foul brood in some sections, nearly wiping out the bees in several areas. Large lots of white clover are reported as bringing 7½-9½c per lb., altho some large beekeepers are holding for 10-12c per lb. and small lots rule considerably higher. Comb honey ranges \$4.50-6.00 per 24-section case, depending on the quality and grade. There is little demand for beeswax, for which beekeepers are receiving 22-26c per lb. The Plains area continues very dry, with little on which the bees can work. Some feeding will have to be resorted to or many colonies will starve. There is little prospect for a fall flow. Large lots of honey are moving at 8-12c per lb.

NORTHEASTERN SECTION.—The long-continued drought checked early nectar flow, but goldenrod, buckwheat, and aster are now helping out the yield. In some sections the yield from goldenrod has been exceptionally good. Large lot prices for white honey range 8½-12c per lb.

SOUTHEASTERN SECTION.—The southern States were favored in the early part of the season, but later rain cut the crop of white tupelo in west Florida, and dryness reduced the sweet clover yield in Alabama. Goldenrod and Spanish needle

should produce a satisfactory fall flow. In Florida some beekeepers are adding to their colonies as a result of surplus honey on hand and the poor market outlook. A few beekeepers in Florida are selling honey as low as 5-5½c per lb., while others are holding for 10c. Alabama, Louisiana, Mississippi, and Georgia apiaries are generally receiving 7-10c per lb. for extracted honey.

WEST INDIES.—Supplies in Porto Rico are said to be difficult to obtain. Cuban shippers recently quoted low as 4½c per lb. for refined honey, altho shipments aggregating 9 or 10 carloads were made to Europe a few weeks ago at 62c a gallon. **TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.**

BOSTON.—No carlot arrival reported since last report. Old crop comb honey cleaning up slowly and no sales of new comb reported. Supplies of extracted honey light, particularly of Porto Rico, which is scarce, in good demand, and slightly higher. Comb: Sales to retailers, old crop New York, 24-section cases white clover No. 1 heavy \$7.50-8.00. Extracted: Sales to bottlers and confectioners, Porto Rico, amber 85-90c per al. California, new crop white sage 14-16c per lb. Brokers less than carlot sales delivered Boston basis, California, new crop white sage 11½c, light amber alfalfa old crop 6½c per lb.

CHICAGO.—Arrivals since last report, 1 car Ohio, 1 car Colo., and approximately 2,000 lbs. Minn., 2,000 lbs. Calif., and 1,000 lbs. Ia. Demand and movement fair with markets just about holding even. Extracted: Sales to bottlers, per lb., Iowa, white clover 11-12c. Colorado and Arizona, white alfalfa 10c, light amber alfalfa 7½-8½c. California, mixed mountain flowers, white 9-10½c. Comb: Sales to retailers, 24-section cases Colorado, No. 1 alfalfa \$6.00-6.50. No. 2 light weight, some broken sections \$4.00-5.50. Beeswax: Receipts moderate. Market about steady with only fair movement. Sales to harnessmakers, ship supply houses, and insulator manufacturers, Arizona, Oklahoma, and Missouri, light 27-30c, dark 25-27c per lb.

CINCINNATI.—1 car Colo. and 1 car, Calif. arrived since last report.

KANSAS CITY.—1 car Colo. arrived since last report. Supplies moderate. Demand and movement slow, market dull on both comb and extracted. Sales to jobbers, extracted: Colorado, white alfalfa 19-12c per lb. Comb: Colorado, 24-section cases No. 1 white \$5.50-6.00.

MINNEAPOLIS.—Since last report 1 car Idaho comb arrived. Demand and movement light, market steady. Sales direct to retailers, comb: Idaho, new stock 24-section cases alfalfa and sweet clover No. 1, \$7.00-7.50.

NEW YORK.—Domestic l. c. l. receipts limited, foreign receipts light. Supplies limited. Demand limited, movement light, market slightly stronger. Extracted: Spot sales to jobbers, wholesalers, confectioners, bakers, and bottlers, domestic, per lb., Californias, white orange blossom 11-13c, white sweet clover 9-10c, light amber alfalfa 7½-8c. New York, white clover 9-10c, South American and West Indian, refined, per gal. best 65-70c, poorer low as 60c. Beeswax: Foreign receipts moderate. Supplies moderate. Demand moderate, movement limited, market steady. Spot sales to wholesalers, manufacturers, and drug trade, South American and West Indian, crude light wide range in prices, best 24-26c, poorer 22c, medium 17-18c, dark mostly 15c. African, dark 15-16c per lb.

PHILADELPHIA.—Arrivals since last report, 1 car Wyo., 15 bbls. Porto Rico, 21 bbls. southern and 125 cases N. Y. Supplies light and insufficient to meet demand. Demand good, market active, prices higher. Extracted: Sales to jobbers, bakers, and wholesale druggists, Porto Rico, mixed flavors light amber 73c per gal. Southern, am'er in bbls., 71c per gal. Southern, in 60-lb. tins light amber 10½c, amber 9½c. Wyoming, white sweet clover and alfalfa in 5-gal. cans 10c per lb. Beeswax: Receipts light, demand slow, market steady. Sales to manufacturers, per lb. South American, crude light 25-26c, slightly darker 22-23c. African, dark 16-17c.

ST. LOUIS.—Comb: Practically no receipts of new stock reported. Supplies of old stock moderate. Demand is limited. Market has generally a slightly firmer tone but few sales reported and all

(Continued to page 660.)

Opinions of Producers.

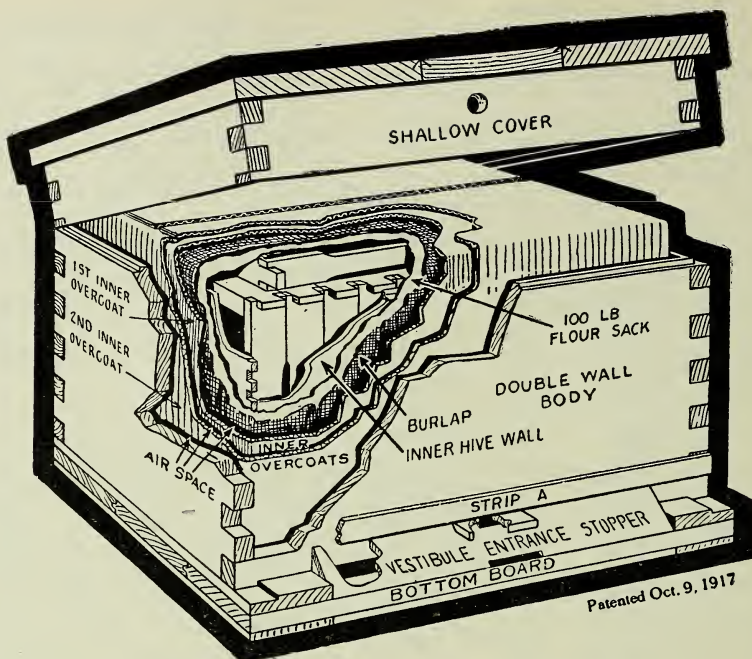
Early in September we sent to actual honey producers and to some associations the following questions:

1. How does the total crop of surplus honey compare with normal to date in your locality? Give answer in per cent.
2. How much surplus honey per colony (if any) has been stored from the fall honey flow (since August 1) in your locality?
3. What is the condition of the colonies in your

locality compared with normal as to (1) Number and age of bees? (2) Stores for winter? Give answer in per cent.

4. What is the condition of the honey plants for next season at this time compared with normal?
5. What price are producers receiving for the new crop at their station when sold to large buyers? (1) Comb honey? (2) Extracted honey?
6. What are prices to retailers in small lots! (1) Comb honey fancy or No. 1 per case? (2) Extracted honey in five-pound packages?

State.	Reported by	Crop.	Fall	Surp.	Condition			Wholesale		Retail	
					Bees.	Stores.	Plants.	Comb.	Extract.	Comb.	Extract.
Alabama	W. D. Achord	80	0	0	100	100	100		\$0.09		\$0.85
Alabama	J. M. Cutts	40	0	0	100	125	80	\$0.20		\$4.80	.60
Arkansas	J. Johnson	150	12	0	100	100	100	.25		6.00	
California	L. L. Andrews	25	0	0	75	50	100		.10		
California	G. L. Larinan	20	0	0	100	100	100		.09		.75
California	M. H. Mendleson	10	0	0	100	100	100		.09	7.20	.60
California	M. A. Saylor	75	50	0	100	100	100	4.00	.07	5.00	.75
Colorado	J. A. Green	95	10	0	100	100	100		.07	5.15	.60
Colorado	B. W. Hopper	20	5	0	80	80	100	5.50	.10	6.00	.75
Connecticut	A. Latham	100	10	0	100	100	90			6.00	1.25
Connecticut	A. W. Yates	30	0	0		90	60			.27	.55
Florida	C. C. Cook	100	0	0	100						.90
Florida	H. Hewitt	50	0	0	80	100	100		.07		.85
Florida	W. Lamkin	75	0	0	100	100	100		.09		.75
Georgia	J. J. Wilder	70	10	0	100	100	100	6.00	.10	.30	.75
Idaho	J. E. Miller	100			100	50	90	.20	.08	.40	1.75
Illinois	A. C. Baxter		60	0	100	100	100	3.00	.20	.40	1.50
Illinois	C. F. Bender	70	20	0	100	100	100	6.00		7.00	
Illinois	A. L. Kildow	100	50	0	100	75	50			.25	1.00
Indiana	E. S. Miller	100	75	0	100	100	100			6.00	1.00
Indiana	T. C. Johnson	100	20	0	125	50	100			6.00	1.25
Indiana	J. Smith	50	0	0	100	100	100	.25	.20		
Iowa	E. G. Brown	55	0	0	100	100	75	.12		6.00	1.25
Iowa	F. Coverdale	0	0	0	110	70	65				
Iowa	W. S. Pangburn	15			95	75	90		.15		.90
Kansas	C. D. Mize	60	0	0	100	75	100			6.50	
Kansas	J. A. Nininger	100	0	0	100	90	90			6.00	1.00
Kentucky	P. C. Ward	30	20	0	100	100	100				
Louisiana	E. C. Davis	75			100	100	100	6.00	.09	6.50	1.00
Maine	O. B. Griffin	60	0	0	95	85	90	.30	.25	.33	1.50
Maryland	S. J. Crocker, Jr.	30	5	0	100	100	100			5.50	1.00
Masachusetts	O. M. Smith				100	50	75				
Michigan	I. D. Bartlett	75	30	0	125	100	100			6.00	.80
Michigan	L. S. Griggs	85	15	0	100	50	100	.22	.11		
Michigan	B. F. Kindig	100	50	0	100	125	125	.22	.12	7.25	.85
Michigan	F. Markham	100	25	0	100	100	100	.25		6.00	1.00
Michigan	E. D. Townsend				105	105	50		.14		
Minnesota	C. Blaker	33	10	0	90	90			.11	7.50	1.50
Mississippi	R. B. Willson	80	30	0	100	80		6.00	.09	.30	1.50
Missouri	J. H. Fisbeck	120	35	0	100	100	100				
Missouri	J. W. Romberger	20	0	0	75	75	50	5.50	.15	.32	.97
Montana	R. A. Bray	95	25	0	90	95	100	5.50	.14	6.00	.82
Nevada	T. V. Damon	50	40	0	100	85	60	4.00		6.00	.65
Nevada	E. G. Norton	20	0	0	100	100	100		.10		
Nevada	L. D. A. Pierce	0	0	0	100	85	90				
New Jersey	E. G. Carr	40			100	100					
New York	Adams & Myers	50			100	75	25	5.00	.09	6.50	1.00
New York	G. Howe				100	100					
New York	F. W. Lesser	80	10	0	100	100	75	5.10	.09		
New York	G. H. Rea	40	0	0	100	100	50			5.50	1.40
New York	O. J. Spohn	70	40	0	100	100	100				
No. Carolina	C. S. Bumgarner	75			100	90	100	.25	.15		
No. Carolina	W. J. Martin	40	20	0	100	100		.25	.11	.40	.27
Ohio	E. G. Baldwin	150	85	0	125	125	80		.08	6.75	1.00
Ohio	R. D. Hiatt	133	0	0	120	75	100			6.00	1.20
Ohio	F. Leininger	125			100	75	75	.20	.14	.25	1.00
Ohio	J. F. Moore	100	0	0	90	80	90		.11	5.00	.75
Oklahoma	J. Heuleisen	20	5	0	50						1.25
Oklahoma	C. F. Stiles	20			100	70	100				
Oregon	H. A. Scullen	60	0	0	100	100	100	7.00	.12		1.00
Pennsylvania	H. Beaver	100	40	0	90	100	60		.12	4.50	.75
Pennsylvania	D. C. Gilham	80	20	0	100		90			8.40	1.40
Rhode Island	A. C. Miller	0			100	100	100				
So. Carolina	E. S. Prevost	75	0	0	100	100				.35	
Tennessee	J. M. Buchanan	100	0	0	100	100	100		.25	7.20	1.35
Texas	T. A. Bowden	50	0	0	90	100	100				.80
Texas	J. N. Mayes	60	0	0	70	80	40	.13	.10		.60
Texas	H. B. Parks	90				110		.12	.08		.65
Utah	M. A. Gill	120			100	100	110	4.50	.08	5.00	.60
Virginia	T. C. Asher	30	0	0	80	60	75	.25	.22		1.25
W. Virginia	W. C. Griffith	100	0	0	100		75			.25	1.25
W. Virginia	T. K. Massie	5	0	0	90	65	95				
Washingtn.	W. L. Cox	50	0	0	85	90	100	7.00	.12	8.00	.60
Washingtn.	G. W. B. Saxton	100	0	0	100	105	100				.80
Washingtn.	G. W. York	75	0	0	90	85	90		.10		1.15
Wisconsin	G. Dittmer	15	15	0	90	100					1.25
Wisconsin	N. E. France	25			100	100	100		.17		1.00
Wisconsin	E. Hassinger, Jr.	50	0	0	100	100	40		.12	6.00	.85
Wisconsin	H. F. Wilson	35	0	0	100	80	100	6.00	.13	7.00	1.25

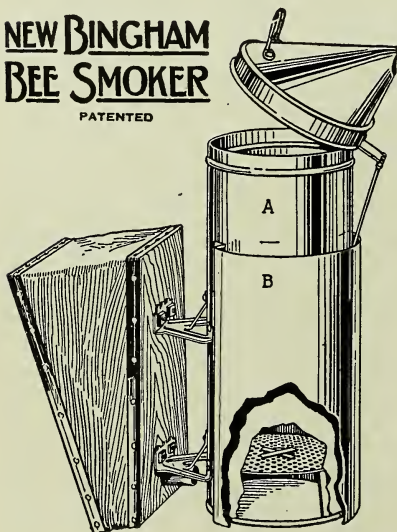


Winter Problem Solved by the Hive with an Inner Overcoat.

It will pay you to try out a sample shipment of these hives the coming winter. The outside walls are made of $\frac{7}{8}$ material and will last a lifetime. Material and workmanship guaranteed to please you. The Inner Overcoats furnish the close-up protection which brings the bees through the winter in fine condition. We can make prompt shipment and prices have been reduced. Your order will have our prompt attention.

NEW BINGHAM BEE SMOKER

PATENTED



BUY BINGHAM BEE SMOKERS.

On the market over 40 years. The bellows of best quality sheepskin is provided with a valve, which gives it pep and makes it respond quickly to the most delicate touch, giving as much or as little smoke as is required. The Big Smoke size, stove 4 x 10 inches, with asbestos-lined shield, permits the holding of the smoker between the knees without danger of burning the trousers or one's legs. This size is much appreciated by extensive operators.

SPECIAL SALE HONEY PACKAGES

Get our latest reduced prices on all honey packages. Let us add you to our large list of pleased customers on this line of merchandise. Special prices on shipments from factories direct to customer. Sixty-pound cans in bulk and in cases. Friction-top pails and cans all sizes. Clear flint glass, Mason jars pints and quarts, tumblers, pound jars and other sizes. Get on to our list, so as to get quotations.

A. G. WOODMAN COMPANY
Grand Rapids, Michigan.

Five-Pound and Ten-Pound Friction-Top Pails

We are naming prices below on these pails, and please note that **THESE PRICES ARE F. O. B. CARS LANSING**, and not from some distant factory point from which you will get slow delivery and high freight rates:

	25	50	100	200	500
5-lb. Friction-top pails.....	\$2.15	\$4.10	\$7.75	\$15.25	\$37.00
10-lb. Friction-top pails.....	2.90	5.75	11.25	22.00	54.00
5-lb. pails per wooden case of 12, per case	\$1.35; ten cases 12.50				
10-lb. pails per wooden case of 6, per case	\$1.05; ten cases 9.50				

-:- -:- -:- -:- -:-

Comb Honey Shipping Cases

There is an increasing interest in the production of Comb Honey, and a material reduction in price on the shipping cases. You will get better prices for your honey if put up in these attractive packages. We quote below:

	10	50	100
24-lb. four-row for 1 $\frac{7}{8}$ -in. sections.....	\$6.00	\$29.00	\$57.50
24-lb. four-row for 1 $\frac{1}{2}$ -in. sections.....	5.85	28.35	56.00
24-lb. four-row for 4 x 5 sections.....	5.85	28.35	56.00

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Paste for Tin and Glass Packages

We have a very excellent paste for fastening labels on your glassware or pails. **THEY STICK.** We are quoting prices below. Postage extra.

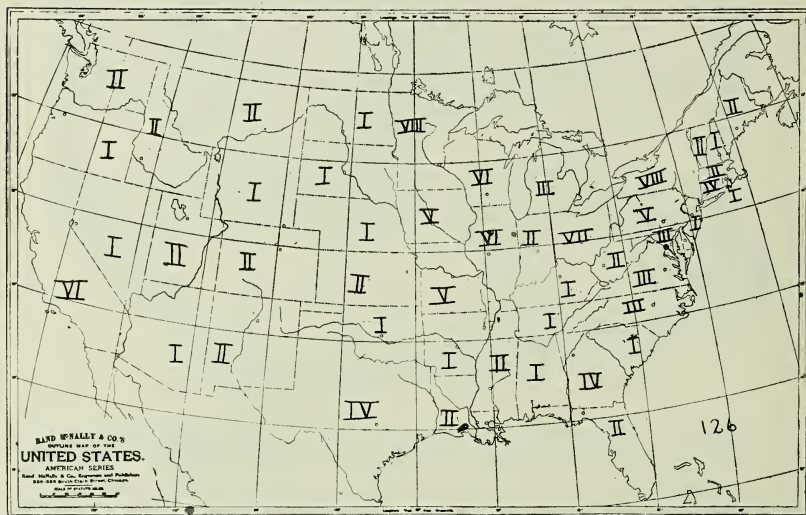
"A" grade paste, per pint.....	\$.30
"A" grade paste, per quart.....	.55
"A" grade paste, per gallon.....	2.00

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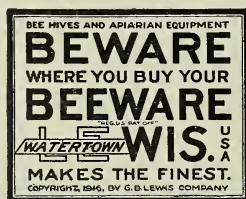
M. H. HUNT & SON

510 North Cedar Street, Lansing, Michigan

WE HAVE 126 COMPETITORS IN U. S. A.



In May, 1921, 126 firms advertised beekeepers' supplies. They made and priced their products to get the business. Distributing nationally, we competed with all of them. Consider that of the 800,000 beekeepers in America, Over 80,000 were on the "Beeware" list in 1921.



G. B. LEWIS COMPANY

Home Office and Works

WATERTOWN, WISCONSIN.

*Branches: Albany, N. Y.; Memphis, Tenn.; Lawyers, Va.
Carlot Distributors Throughout the U. S. A.*

GLEANINGS IN BEE CULTURE

OCTOBER, 1921

Asking Retail Prices When Selling Locally.

PROBABLY more honey is being sold locally by beekeepers this season than ever before, the demand in some localities being quite brisk at this time. Those beekeepers who are selling their own honey should again be reminded that they should ask a fair price for the honey when selling it at retail. It is not necessary to cut prices below the market in order to sell a really good grade of honey. When the beekeeper sells his own honey he should remember that he as salesman is entitled to pay for his time in making sales and delivering the honey. The consumers expect to pay for this service.

THOSE who have not already sent in their contribution to the Doctor Miller Memorial fund and who expect to do so, are urged to mail their contributions at their earliest convenience. The matter is being held open for a short time on account of contributions being sent in from beekeepers' associations, as the season for holding their meetings is here, as well as belated offerings from individuals. Subscriptions may be sent to any member of the committee as follows: C. P. Dadant, Hamilton, Ill.; B. F. Kindig, Lansing, Mich.; E. G. LeSturgeon, San Antonio, Tex.; Dr. E. F. Phillips, Bureau of Entomology, Washington, D. C.; E. R. Root, Medina, Ohio.

The Doctor Miller Memorial Fund.

THE LATE honey flow has been unusually good, especially thruout the northeastern part of the United States and parts of Canada. In some localities considerable surplus honey has been stored since August 1, as will be noted in our "Opinions from Producers" on our market page. In other localities the bees have gathered but little more than they have consumed in brood-rearing, and in many places they have gathered only enough to stimulate heavy brood-rearing while using up their supply of stores. Many beekeepers report that their brood-chambers are filled with brood, having almost no honey.

Excessive Brood-Rearing in September.

It is not often that beekeepers complain

of too much brood in September, the trouble usually being in having too little. As a rule, the bees are in excellent condition for winter, but where the fall honey flow has been light there is great danger that these splendid colonies of young bees will starve this winter if not fed. Many colonies that were well provided with stores in July have used most of their honey in brood-rearing and are now in danger of starvation. Feeding, if needed, should by all means be done this month in the northern States.

F. W. L. Sladen Accidentally Drowned.

OUR readers will be shocked to learn of the untimely death of F. W. L. Sladen, Dominion Apiarist, Department of Agriculture, Dominion of Canada. Professor Sladen was accidentally drowned on Sept. 10 at Duck Island, where he was carrying on special research work in the breeding of bees. Our readers will remember that a preliminary report of this work was published in this journal in the issue for February, 1920.

Several articles from his pen have appeared in our columns recently and others were in contemplation or preparation. The beekeeping industry has lost in Professor Sladen one of its most valuable men. He was devoting his entire time to research in beekeeping problems.

Fall Honey Flows Earlier in North.

STRANGE as it may seem at first thought, the fall honey flow begins earlier in the North than in the South. In many cases, even the same species of plant begins to yield nectar first in the far North, and the honey flow then moves southward, thus reversing the movement of the spring honey flow. In general, nectar secretion apparently begins in the South in the spring, moves northward as the season advances, then turns around, and moves back southward on the fall flows. In some places in the far North the spring honey flow is so late and the fall honey so early that there is no interval between, while farther south the interval increases. This brings up the question whether the midsummer dearth of nectar is a result of higher temperature or a lack of flowers. For instance, could the gap in the

honey flow be closed by carefully planned plantings of different varieties of sweet clover? Attempts were made years ago to to close this gap by early planting of buckwheat but without success. Usually plants blooming out of season furnish but little if any nectar.



OCTOBER is preeminently the month for packing bees for winter. In the far North



October Best Time For Packing Bees.

the earlier in the month this is done the better. In fact, some northern beekeepers prefer to pack their bees late in September. As a rule, there is less rain during October than during other fall months, so that the work of packing is not often interrupted for long by bad weather, and the packing can be done while the hives and material are dry. If packing is postponed until later, rain or snow often interferes with the work and the hives may be wet or covered with snow. If nectar is gathered late or if feeding is necessary, the nectar or syrup is no doubt better ripened when the bees are packed. Throughout the North all winter packing and feeding, not already done, should be done this month.



A LARGE percentage of the honey labels used on bottles and cans of honey in this country con-



Shall We Eliminate the Word Extracted from Honey Labels?

tain the words "Extracted Honey," the word "Extracted" in some cases being almost as prominent as the word "Honey." This term has so long been established in beekeeping literature that it would not be wise at this time to attempt to eliminate it, even if it were desirable to do so. As a technical term for beekeepers perhaps no better could be found, but why confuse the public by printing a technical term in beekeeping on honey labels? To many people, "Extracted Honey" conveys the idea that the honey has been put thru some process. They think of process butter or lemon extract, and too often they associate "Extracted Honey" with manufactured food products. If they know how good "real honey" is, they may drive to the country to buy it from some beekeeper who sells the honey "just as the bees made it."

Instead of making capital of the fact that the consumer gets the honey just as the bees made it except that it is transferred from the waxen containers, built by the bees, into glass or tin containers for the market, beekeepers have been using a term on their honey labels which suggests that the honey has been changed by some special process. Why not eliminate this word from honey

labels, simply using the word "Honey?" It is a good word to conjure with and any attempt to improve it with any qualifying word is liable to make it less attractive. Comb honey can then be differentiated by referring to it as "Honey in the Comb" or "Comb Honey."



ELSEWHERE in this issue are discussions of the effect of the quality of the winter



Importance of the Quality of Winter Stores.

stores in the North where the bees are often confined to their hives for long periods without a cleansing flight. In cellar wintering success or failure hinges largely on this one factor; for, no matter how strong the colonies are in young bees or how well they are protected, successful wintering in cellars can not be accomplished on inferior stores. In the far North the same thing is true in outdoor wintering. Fortunately for the beekeepers in the far North the honey stored there is better for winter stores, as a rule, than that stored farther south, but it can not always be depended on as safe for the northern winters.

Last winter was so mild that the quality of the stores made but little, if any, difference in the way the bees wintered in the northern part of the United States, for they had frequent cleansing flights; but we need only to recall conditions during the previous winter for an example of the disaster which comes from a combination of a severe winter and poor stores, even as far south as Kentucky and Tennessee.

The question again comes up whether it will pay beekeepers to go to the trouble and expense of feeding to correct the quality of winter stores where they are not of the best, doing this year after year, in localities where perhaps only one winter in five or ten would bring disaster from inferior stores. How many business men, in order to save a little each year, would take a chance on their business being wiped out once in every five to ten years? Instead of taking such chances, business men pay out large sums annually in various kinds of insurance to protect themselves against a possible loss. Since beekeeping is rapidly becoming a serious business with many, such chances should no longer be taken.

In many cases at least when the stores are inferior, the beekeeper actually profits by feeding 10 to 15 pounds of good stores after brood-rearing has ceased, even during the milder winters, because the bees consume less of good stores than they do of poor stores. This is because the bees are more active when they use poor winter stores. The actual consumption of stores during the broodless period is sometimes two or three times as many pounds when the stores are poor as when they are good, while in the spring the poor stores probably

go as far in brood-rearing as the good stores. In the northern half of the United States we may find that feeding to correct the quality of the winter stores actually pays year after year in the saving of stores alone, to say nothing about saving the vitality of the bees by enabling them to remain more quiescent during the broodless period. As mentioned elsewhere, some beekeepers now do this kind of feeding by placing combs of early-gathered honey of good quality below the brood-chamber after most of the brood has emerged, so the bees will move up some of the honey, while others prefer to feed 10 to 15 pounds of a heavy sugar syrup. In either case the important thing is to have it stored where the brood has recently emerged, so it will be used first.



IN SPITE of all the publicity given to honey in this country during the past decade,



**Honey Deserves
To Be Better
Known.**

apparently but a small percentage of the American people give it more than a passing thought, and this only on rare occasions. At one time this was also true of raisins, oranges, grapefruit, and many other well-known food products. Most housewives now know something about where and how these once obscure foods are produced. They know something about the process of manufacture of various breakfast foods and where the great factories are located that make them. They know more or less about dozens of articles to be found on the grocers' shelves entirely unknown to former generations; but how little they know about honey—one of the oldest of human foods!

How many people aside from beekeepers know that hundreds of intelligent men and women are devoting their time to the production of honey, some of whom ship their honey to market in carload lots? How many people know what plants furnish surplus honey, how the honey is taken from the bees and taken out of the combs? Most people, when their attention is called to the subject of honey and honey production, think of a few colonies of bees back in the garden of their childhood days, which on rare occasions yielded a meager supply of a most delicious and wholesome food. They do not know that an abundant supply of even better honey can now be purchased in almost any market at a reasonable price, or that several tons of it may be piled up in the honey-house of a local beekeeper a few miles away waiting for a purchaser.

If more people could know even a few facts about bees, honey production, and honey, it would certainly seem that sales of honey should take a jump that would startle all of us. Much good is being accomplished along this line just now by pushing the sale of honey by personal contact of bee-

keeper and consumer in selling honey locally, as well as thru the regular channels of trade. All of this is certain to result in a greater consumption of honey in this country, but we still have a long way to go before honey becomes sufficiently well known to occupy the place it so richly deserves among the nation's food products.

Beekeepers can do much toward making honey better known by furnishing carefully written and interesting articles on honey production and honey for their local newspapers. These papers are anxious to secure this kind of material for publication, consisting of well-written articles describing a local industry and not savoring of free advertising, especially if the editor or reporter can be induced to visit the apiary to see how honey is produced, and to learn how good it is, by tasting liberal samples as it runs out of the extractor. Frequent mention of the honey industry should appear in our newspapers just as of other minor industries, and honey should be listed on the market page with other produce.

Beekeepers who have the gift of writing should supply their local papers with as much matter on honey production as they will use. These articles should be carefully written, interesting, and instructive. They should present only those phases of beekeeping which are of general interest, omitting the more technical phases of the subject. There is a great wealth of material for such articles in the community life of the honeybee and its usefulness to man, both as a producer of a most wholesome food and as the chief agent in the pollination of many plants, its value to horticulture and agriculture being many times the value of the honey produced.

Just now perhaps the greatest benefit to the industry will come by emphasizing honey. The nectar-bearing plants of the locality which furnish surplus honey should be mentioned and the fact that the honeybee is the only means by which this nectar can be collected in sufficient quantity for human food. The process of extracting the honey from the combs without injuring them is interesting to most people.

The important thing is to inform the public in some way that honey production is now an important industry, that honey of finer quality than ever before is now being produced in quantities that stagger the imagination, and that this honey can now be purchased almost anywhere at a reasonable price. For those who do not feel that they can put their ideas in shape for publication in their local papers, *Gleanings* is prepared to furnish suggestions or assistance. If you will send us a rough sketch of an article for your local paper, we will put it in shape for publication, or we will furnish suggestions in the form of an outline from which an article fitting local conditions may be written. For this service there will be no charge.

IN spite of all that has been written on the subject, wintering still stands out as one of the big problems in bee-keeping. Every year, winter

takes its toll of colonies of bees in this country, often 10% and sometimes, in restricted areas, even 60% or more of the colonies. Even in the sunny South, winter losses are quite common, often being as heavy as in the far North.

In addition to the loss of colonies, sometimes a large percentage of those which survive the winter are so depleted that they can be of but little value in honey production the following season. How many industries could stand such losses and continue to exist? But there are beekeepers scattered thruout the country who not only winter practically all their colonies even during severe winters, but who succeed year after year in carrying them thru in good condition to build up for the harvest. What do these men do that others fail to do?

There are but a few factors essential to successful wintering. When these are present to a sufficient degree in the fall, good wintering should result even during severe winters. These factors are so well known that it seems unnecessary to enumerate them here. Since they are almost wholly within control of the beekeeper, winter losses and depletion of colonies are not necessary, provided the beekeeper is willing to pay the price of having the conditions right before winter begins.

The factors essential to good wintering are:

(1) Normal colonies of vigorous bees in the fall, most of which are young.

(2) An ample supply of food easily available thruout the winter. (In the North the winter stores must be of the best quality.)

(3) Protection that is adequate for the most severe winter that may come in the particular location.

What Constitutes a Normal Colony in October.

As pointed out in an editorial in the August issue of this journal, preparation for winter begins in August, so far as having the colonies in a normal condition in October is concerned. In many cases the first step in preparing the bees for winter is that of replacing old or otherwise inferior queens with young ones, doing this in time for the young queen to have at least six weeks, before brood-rearing is suspended for winter, to lay the eggs that produce the winter bees. In other cases the first step in preparation for winter is that of giving several combs of honey to colonies not already amply supplied at the middle of Aug-

THE WINTERING PROBLEM

The Three Essentials for Successful Wintering. A Winter Case Costing Only a Few Cents for Material

By Geo. S. Demuth

pertain to brood-rearing during the six weeks just preceding the time that brood-rearing is usually suspended in the fall. This important brood-rearing period is usually the latter half of August and all of September in the North, and a little later farther south. If brood-rearing is normal in extent during this period, there should be plenty of young bees for winter. The beekeeper needs only to correct any condition which may prevent the bees carrying out their own program as to brood-rearing during this period, such as poor queens, lack of stores, or lack of room. The bees will usually do the rest.

Fortunately thruout large areas in the northeastern part of the United States a good fall honey flow has put the bees in splendid condition for winter, so far as the bees themselves are concerned. In some places late brood-rearing has been excessive, and the hives are now full of young bees, but in some cases they have almost no stores. In other localities there may be plenty of stores for winter, but not many young bees. The deficiency in stores can be corrected, but there is now no remedy for a lack of young bees. To this extent at least, it has already been determined how the bees will winter. Nothing that can be done now can entirely retrieve a situation lost last August.

There should be at least about three pounds of young bees in each colony now, in addition to the older ones, for that many (still young if they winter well) will be needed next spring at the beginning of the building-up period.

Amount of Stores Needed for Winter.

The second essential for good wintering is an ample supply of stores so arranged that it is within easy reach of the bees thruout the winter. Just how much is needed is a question on which beekeepers in different localities may never agree, but the mistake of leaving too little is certainly more common than leaving too much.

Strong colonies wintering perfectly in a northern bee-cellar may consume less than 10 pounds of honey during the four or four and a half months they are in the cellar. In fact, there are records of strong colonies consuming even less than five pounds while in the cellar, but after they are put outside their stores disappear rapidly. Colonies that are well protected outside will consume but little more than those in the cellar if they are quiet; but, if active, they may consume many times the above amounts. In

ust, in order that the number of winter bees shall not be reduced because of a threatened famine. In other words, the first steps in preparing for winter

the South where the bees are much more active during winter, the stores are consumed rapidly, and unless they are abundantly supplied there is great danger of starvation.

While under favorable conditions only 10 or 15 pounds may be needed for the actual broodless period, the colonies may need 30 pounds or more in addition for spring brood-rearing. In most cases this should all be in the hives in October. As many successful beekeepers express it, they do their spring feeding in the fall; then they know it is done in time.

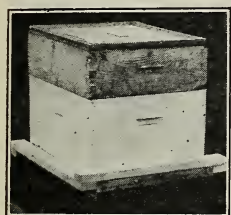


Fig. 1.—Two-inch rim in place about bottom of hive.

Empty Cells for the Winter Nest.

Much has been written about the necessity of vacant cells for the winter cluster, but it is well to remember that there is greater danger in having too many vacant cells than in having too few. For instance, good wintering could not be expected in a colony having 20 or 30 pounds of honey scattered thruout a two-story hive with but one or two pounds in each comb. When the bees are compelled to form a compact cluster it is safer for the cluster to envelop some of the honey on all sides and at the

top than to be in contact with honey at the top only.

As the years go by beekeepers are learning the great advantage of leaving more stores than were formerly thought necessary. Some now give each colony a shallow extracting super



Fig. 2.—Paper is fastened to rim by means of lath.

per filled with early-gathered honey, while others give each colony six or eight full-depth combs of honey in an extra hive-body, wintering the bees in two stories. Still others accomplish similar results by using large brood-chambers, which they manage to have well provisioned with honey or sugar syrup in the fall.

Quality of Winter Stores.

In the South, where the bees can fly freely every week during the winter, the bee-

keeper needs only to see that each colony has enough stores to last until more can be gathered next spring, the quality of the stores making little if any difference. In fact, some California beekeepers extract all the white honey from the hives late in the summer, and then move to locations where the bees can fill the combs with honeydew for winter. Such a procedure would, of course, result in a 100% loss of colonies in the far North where the bees are confined to their hives without a cleansing flight for several months. Here it is fully as important that the winter stores be of good quality as that there shall be enough. In fact, it would seem less cruel, and at the same time less expensive, to take away all of their stores and let the bees starve in the fall than to leave them 50 pounds of honeydew or honey of such poor quality that the bees would burn out their lives and die miserably of dysentery in midwinter.



Fig. 3.—Cutting opening for entrance thru paper.

Between these two extremes where, during most winters, the bees enjoy a cleansing flight every two or three weeks, beekeepers, as a rule, are inclined to take their chances as to the quality of winter stores. Here the occasional severe winter works its greatest havoc, sometimes wiping out more than half of the colonies. It seems strange that thousands of beekeepers should continue to take the chance of losing heavily from poor winter stores when trouble from this source can be avoided so easily by feeding each colony 10 to 15 pounds of good honey or sugar syrup after brood-rearing has ceased. By waiting until most of the brood has emerged before feeding, the good stores are placed in the cells thus made vacant where they will be used first, leaving the poor stores until they may safely be used for brood-rearing next spring. Many northern beekeepers now insure themselves against



Fig. 4.—Upper edges of paper folded down.

loss from poor stores by practicing this kind of feeding annually in October, regardless of the amount of honey already in the hives. When sugar syrup is given it should be fed while still quite warm, and given in

such a manner that it will be taken down and stored quickly.

Some beekeepers, who use a separate "food chamber," manage to have the combs in these filled with some of the best honey for winter, and then, after brood-rearing ceases, they put this super or "food chamber" below the brood-chamber. When this is done the bees soon carry some of this honey upstairs, storing it in the cells recently vacated by emerging brood. This is one way of feeding good honey, to correct the quality of the winter stores.

It usually happens that the poorest honey for winter use is stored last, being placed where it will be used first, leaving the good honey in the upper corners of the frames to be used the next spring. By late feeding this condition is reversed, as it should be. Honey from white clover, alsike clover, buckwheat (if not mixed with honey from other fall flowers), and alfalfa, if not granulated, is considered good for winter stores; but, when there is any doubt about the honey, granulated sugar syrup is the safest winter food for the broodless period in the North, leaving the honey for brood-rearing in the spring.

Winter Protection.

Colonies which have plenty of young bees in October and which are supplied with an abundance of stores of good quality, as described above, are hard to kill by severe weather. It might be better if they were less able to fight their way thru the winter, many beekeepers would be compelled to protect them better than they do now or quit trying to keep them.

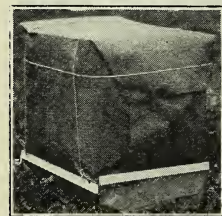


Fig. 6.—Cords are used to hold cover in place.

In wintering outside, some prefer to have the packing built in as in double-walled hives; others prefer to use a winter case to hold one, two, or four colonies. Equally good results should be obtained by any of these types of winter packing, provided the protection is adequate, and almost any of them should pay back their first cost every year in increased profits from the apiary in the northern half

of the United States. The four-colony winter case is rapidly gaining in favor among northern beekeepers.

The first cost of winter cases need not stand in the way of good wintering, however, for bees can be well protected for only a few cents per colony for cost of material, by using a cheap grade of tarred paper to hold the packing in place and keep it dry.

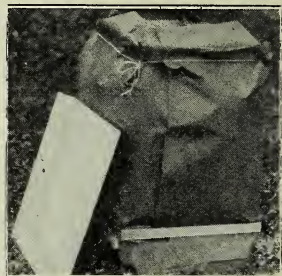


Fig. 7.—Arrangement for using regular hive cover.

An Inexpensive Winter Case Made of Paper.

To pack a single colony in a regular 10-frame hive, cut two pieces $\frac{7}{8} \times 2 \times 20\frac{1}{4}$ inches, two pieces $\frac{7}{8} \times 2 \times 24$ inches, two pieces lath 20 inches long and two pieces 24 inches long. From a roll of 36-inch single ply slaters' felt, cut one piece 8 feet long and another 4 feet long.

Make a rim of the 2-inch pieces which fits around the lower part of the hive (Fig. 1), by lapping over the corners and fastening with a single nail. The piece in front should rest on the side rails of the bottom-board, leaving the entrance open. The two side pieces should come below the end piece in front and above the end piece at the back, thus dropping the rim $\frac{7}{8}$ inch lower on the sides than in front, and $\frac{7}{8}$ inch lower at the back than on the sides. A small nail driven part way into the back end of the bottom-board supports the rim at the back.

Stand the 8-foot strip of paper on edge around the hive and tack on the lath to fasten the paper to the rim, using two nails in each lath driven only part way home (Fig. 2). The paper should touch the ground all around the hive, the entrance now being covered with the paper. Cut a hole $\frac{3}{4} \times 2$ inches thru the paper for an entrance (Fig. 3). This hole can easily be enlarged next spring when a larger entrance will be needed. Where the ends overlap, pin the paper together with two or three wire nails.

The packing material should be packed down in the corners to make them stand out square, after which the packing is simply poured in at the sides and ends without



Fig. 8.—Regular hive cover in place.

pressing down. This is to prevent bulging out the sides. From three to six inches of packing can be put in at the sides and ends by permitting a slight bulging of the paper beyond the rim at the bottom, or a greater

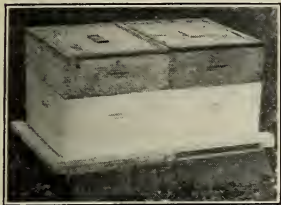


Fig. 9.—Rim in place for packing hives in pairs.

amount can be put in if some slack is left in the paper at the lower corners when the lath are nailed on. Fill in with 8 to 10 inches on top, then fold down the upper edges of the paper

as in wrapping a package (Fig. 4).

Crease the 4-foot piece of paper, which is to be used for the cover, by folding over the edges (Fig. 5) before putting it in place. After it is in place fold the corners neatly, as in wrapping a package; then tie a cord around the folded-down edges to hold them snug against the sides (Fig. 6). Tie a cord to one of the projecting nails in one of the side lath, pass it across the top of the hive under both nails on the opposite side, then back to the other nail on the first side, where it is fastened.

Using Regular Hive Cover Instead of Paper Cover.

The ordinary hive cover may be used instead of the paper cover, by putting an empty hive-body on top of the hive, then folding the paper against its upper edge above the packing (Fig. 7). Tie a cord around the upper edge of the paper to hold it in place, pack the upper story, and put on the cover (Fig. 8).

Packing Hives in Pairs.

Hives can be packed in pairs with but little more material and labor for the two than for a single hive. For two colonies the 2-inch pieces for the front and back of the rim should be $36\frac{1}{2}$ inches long (Fig. 9), and the lath for the front and back should be 36 inches long. The paper to form the sides should be cut about $10\frac{1}{2}$ feet long (Fig. 10), and for the cover about $4\frac{1}{2}$ feet long.

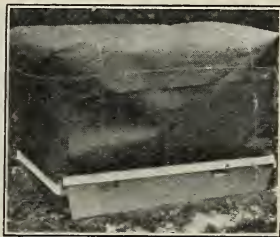


Fig. 10.—Pair of hives packed complete.



THE underlying principles of good winter packing are universal, and need no rehearsing here. It is in their application that differences occur. From the time when the quadruple case first made its way into favor with beekeepers, down to the latest bulletin on winter packing, issued by the United States Department of Agriculture (September, 1918), it has suffered many and wide variations in details of construction. But, taking the variously made cases as they appeared, it seems to me that four cardinal weaknesses in the make-up have made the mechanical features of a case, otherwise really good, liable to just criticism. The points so censurable are as follows:

SOME PACKING CASE PROBLEMS

How These Difficulties Were Overcome to Meet the Necessities of a Large Producer

By E. G. Baldwin

The case here described and illustrated remedies in some degree at least, so it seems to me, all four of the inherent weaknesses or faults named.

(1) The absence of any tried, tested, and approved device for enlarging or contracting the entrances of the case.

(2) Awkward, inadequate, or flimsy means of holding the corners of the case together.

(3) The laying on of the boards horizontally.

(4) Lack of rigidity in construction.

The recommendation for standard-sized entrances, as given in Farmers' Bulletin 1012, United States Department of Agriculture, is four angular holes, each three-eighths of an inch in diameter. And this size of opening I myself religiously preached from one end of Michigan to the uttermost parts of Ohio, and up and down the good State of Indiana. This, too, despite many complaints that kept coming in, that a larger opening must be provided in middle and southern Indiana, and in Ohio south of Columbus. When I took up the practical application of beekeeping principles commercially, more especially of the principles of winter packing in northeastern Ohio, several years ago, in a section where fall flows from buckwheat, goldenrod, and wild asters give an almost certain crop, that leaves the colonies overflowing with bees at the time they are packed for winter, I found it impossible to confine the bees to the hives by

"four three-eighths inch augur holes" when first packed. The bees would cluster out in immense bunches all night and all day, sometimes for several weeks after packing, and work in the fields seemed almost to be at a standstill under such conditions. Again, in spring, when a heavy fruit bloom is on, or even soon after maples and willows ceased blooming, the clustering bees at the entrances of the cases caused much confusion and the loss of hundreds of little pellets of pollen, scraped off by the bees crowding at the openings.

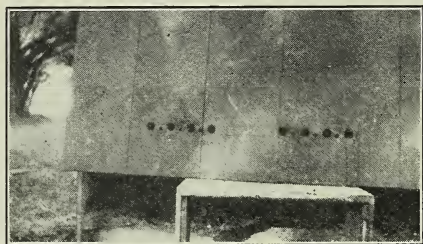


Fig. 1.—Shows the four $\frac{3}{8}$ -inch entrance holes for flight openings in early fall and late spring open, and the three $\frac{3}{8}$ -inch holes between the larger holes for use during cold weather. The larger holes are plugged during winter.

After trying a block that turned down at right angles in front of the augur holes, we discarded this form also as inexpedient, because any roughness of the outside wood of the packing case, or any unevenness in its surface would prevent a tight fit, allowing currents of air to draw into the augur holes. Such buttons also draw away from the case by warping, and make larger gaps than should be there. And so finally we tried out a simple plug, or set of plugs, inserted in the larger holes in cold weather. We bored four $\frac{3}{8}$ -inch holes for the flight openings in early fall and late spring, and between these we made three $\frac{3}{8}$ -inch holes (Fig. 1), to be used in cold weather. Of course, the small holes do no harm during the time the large holes are operating. The plugs we turned out on a stake-sharpening machine very easily and quickly. All the holes are lined up along the lower edge, to connect with the floor of the runway. The large holes are about an inch apart, but the distance apart is not a very material consideration.

Fastening the Corners.

A common recommendation for corner fastenings was ordinary screen-door hooks and eyelets. Such often pull out and are not very substantial. We found the eyelets or hooks themselves got jammed or knocked off in handling, loading, and hauling the cases "knocked down." We then tried 2x2's upright along each end and side, with bolts thru both the 2x2's and the boards of the case; one bolt at the top, and one at the bottom of each corner—8

bolts in all, just as there were 8 hooks in all. We object to the boards running horizontally, for reasons to be given later; and the use of bolts necessitates this construction. Both bolts and hooks alike necessitated digging down inside the packing-case to open; and one trial of unpacking, by standing on my head and burrowing like a rat terrier in the sawdust was enough.

How simple the remedy for both faults! A simple change of the position of the 2x2's from upright to horizontal enabled us to run the boards of the case perpendicularly, and brought all four corners of the 2x2 cleats one above the other, so that a single rod can pierce and hold all the corners firmly and effectually, and, best of all, a mere lifting-out of the iron rod at two corners of the same end or side let the end or the side of the case open out and down most easily—no burrowing till one's face grows red and his fingers black.

Fig. 2. gives an idea of the corner construction and the use of a 5/16 iron rod as a pin thru both top and bottom cleats of each corner. The upper end of the rod is bent at right angles for about an inch. The lower end is pointed. Notice that the 2x2 cleats are nailed on the side pieces of the case two inches higher than they are on the end pieces—which permits the ends and sides to come together unobstructed and allows each end of every 2x2 cleat to act as a stop against which the boards of the

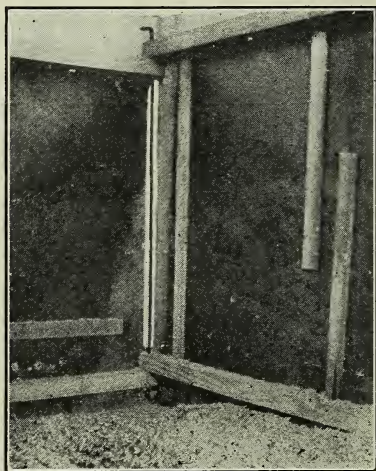


Fig. 2.—Corner construction. Note that the 2x2 inch pieces on the side overlap those on the end and are fastened by an iron rod which passes thru all four pieces.

adjoining end or side come flush. Fig. 2 also shows, faintly, the one-inch strip nailed on the end piece of the case which comes flush against the side piece to serve as a weather strip against rain or snow. The iron rod inserted in the holes is far enough

away from the boards to allow the weather strip a place behind it. Wonderful rigidity and solidity of the case are thus attained very simply.

The entire inner surface of the case is covered with building-paper fastened on with lath. This is to prevent the fine sawdust from absorbing a bit of dampness, even from the atmosphere. Sawdust (fine sawdust especially), such as we desire and use, is the ideal packing material; but, as everybody knows, it is most prone to absorb moisture if there is any within a hundred miles or less; hence our precaution in regard to building-paper.



Fig. 3.—One end of case removed showing hives in place. Note how sides are supported by the 2 x 2-inch pieces which support the hives.

Our experience with cleats of $\frac{3}{8}$ stuff for the framework has been unsatisfactory. The end or side pieces often bulge out in the middle when the packing is tramped down tight. Planer shavings in particular required to be rammed down very firmly between the sides and the ends of the hives and the case; and such pressure often strains the cases not held by more than $\frac{3}{8}$ -thick cleats at the top and bottom. Two 2 x 2 cleats, made of pine, are not heavy but they are extremely firm and rigid. The lower cleat on the side pieces of the case is nailed at the proper height from the lower edge, to permit it to rest on top of the 2 x 4's used for hive-supports (Fig. 3), thus forming a support for the side pieces which telescope down over the bottom of the winter case.

Advantages of Perpendicular Siding.

During the recent war it was practically impossible in most localities to secure lumber dry enough not to check and shrink when exposed to drying weather. Cracks often formed in packing-cases built of such materials, and leaking resulted when the boards ran horizontally; and even since the "dove of peace" has flown all over the lands, and old-time conditions are returning, it is still hard enough to get well-dried lumber. The difficulty here named forced us to resort to the use of perpendicular boards in making cases, and with the most complete satisfaction, for considerable checking can occur and still the case re-

mains absolutely water-proof. Water will follow down a crack and run off at the bottom; but it will stop and run into the case if the same-sized cracks run horizontally. The sawdust in our cases has remained bone-dry up to the present time, and that, too, when the cases stand out in the open, winter and summer.

Rigidity of the Case.

Enough has already been said here about the firmness of this case. Not only will it stand handling, packing, and unpacking, but it goes together with a perfect fit—an item of no mean importance when the time of assembling is charged against the operation.

We use the regulation six-inch telescoping cover topped with tarred paper that is nailed well down over the boards on the ends and sides of the cover. The sides and ends of the case in turn telescope down over the bottom of the case.

Our runways (Fig. 4) are made of $\frac{3}{8}$ stuff for strength and durability, with the customary division cleat in the middle, to separate the two hive-entrances. They run the full width of the hive entrances. Most of our packing material consists of fine planer shavings mixed with about an equal volume of fine dry pine sawdust—a combination that "likes us well." We sack up

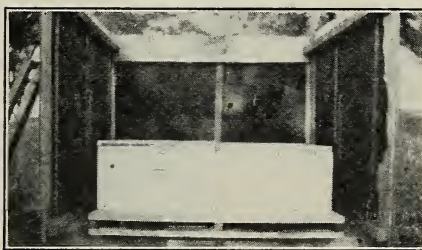


Fig. 4.—Entrance tunnel in position. This tunnel is $\frac{3}{8}$ inch deep to correspond with the $\frac{3}{8}$ -inch augur holes opening to the outside.

all the packing material when the bees are unpacked in the spring, and the filled sacks are set in the cases ready for fall use. It is thus a very easy operation to set out sacks, set in hives, put in packing, and close the cases. The sacks are then tied up in bundles of 25 each, and carefully put away. We used to lay them in the cases on top of the packing; but an occasional predatory mouse, that does now and then get in, chewed so many holes in our precious gunny sacks that we now take more care to guard them from rodents. We pack six to seven inches around the hives, and our cases are high enough to allow 12 or 14 inches of packing above even a two-story hive, and 24 inches above a one-story hive.

Ashtabula, O.

THE name of Luther Burbank, the plant wizard of California, is known all around the world; but in these latter days we have a new wizard in the person of our sketch, Prof. H. G. Hughes, head of the farm crops department of Iowa Agricultural College. He has not simply made two blades of grass grow where only one grew before, but has made many of them develop and perform wonders. If he had done no more than to discover this new annual sweet clover, or Hubam, as it is now called, he would have been famous; but he has made some other discoveries in the line of new and better plants that will make him one of the really great world benefactors. We can not compare Burbank and Hughes, because they have exploited different fields.

One can not be in contact with this remarkable man without realizing that he is in the presence of genius itself. In spite of the great discoveries that have been laid to his credit, he has a transparent geniality that makes it easy for one to see the real heart of the man. The picture shows him as he really is—his delightful personality, the geniality of Douglas Fairbanks and the genius of Luther Burbank.

In addition to his great achievement, the discovery of the new Hubam clover described in our last issue, which is one of the greatest discoveries known in agriculture and bee culture, too, he has done some other things that deserve something more than a mere passing reference in a bee journal. Briefly I will attempt to enumerate a few things that I have been able to obtain from his friends and colleagues, for he is extremely reticent about his own exploits. Instead of saying, "I have done so and so," he will say, "It has been developed at the Iowa Agricultural College," as if he were not a factor in the thing. While beekeepers are not supposed to be particularly in-

PROF. H. G. HUGHES

Something More About the Man Who Has Done and Is Still Doing so Much for Bee Culture and Agriculture

By E. R. Root

the South and West. This means that farmers with worn-out lime lands will propagate the plant, and the beekeepers will get the benefit. The time has now come when the needed plant food which has been taken off for so many years will have to be put back, and Hubam will do the trick.

There are eleven achievements that his associates place to his credit. Let us review briefly some of these:

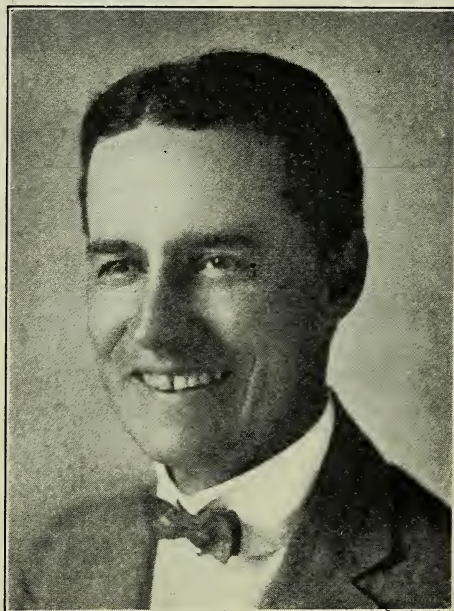
(1) During the Great War, when seed corn was scarce, Prof. Hughes worked out the Ragdoll seed-corn germinator. This device is now recognized as the best method for testing individual ears. So useful is it that it is now being introduced all over the country.

(2) Prof. Hughes does not claim to be the discoverer of a new corn; but he took a new variety, the Silver King, and bred it systematically for five years, improved it, and then distributed hundreds of samples to farmers. Today Silver King is grown in Iowa more than any other strain.

(3) In 1903 he undertook co-operative experiments with farmers to determine why alfalfa was not grown more extensively in Iowa. He found the cause, i. e., lack of inoculation and lack of lime on a land supposed to have enough. This work encouraged the promoters of alfalfa in other States, and helped to establish alfalfa as a standard corn-belt crop.

(4) Prof. Hughes improved a method for preventing rust on oats; and after three years of work he was able to reduce the labor involved, by which the seed required per acre could be treated in only four minutes.

(5) The Ames hulling and scarifying machine was an invention of Prof. Hughes that took him about eight years to develop. It is one of his great



Prof. H. G. Hughes and his characteristic smile.

terested in corn and in growing it, they ought to be interested in a honey plant that will restore the old and over-cropped corn lands thruout

contributions to the world. Clover seed, which gave a germination of less than 25 per cent, after being treated with this machine will give a germination of over 85 and 95 per cent. Prof. Hughes could have patented this machine. He could have formed a stock company with himself as president and manager; but he preferred to give the whole thing to the public, as he did the new Hubam clover, without a cent of compensation other than what he received in his regular salary as head of the farm crop department of the Iowa State College.

(6) The Ames seed-sampler, sometimes known as the Hughes pneumatic sampler, is another one of Prof. Hughes' ingenious contrivances. By the use of this device, employing suction, samples of seed are cleaned automatically, more accurately, and much more quickly, than they could be treated by the old method. This invention, like his other ideas, was given freely to the public.

(7) In 1917, when the corn crop of his

eyes began to show that he had something that interested him.

"What have you found?" I asked.

"I think I have found an annual-blooming biennial sweet clover," he replied.

"Let's call it Alahu," I said.

"No," he said, "you helped to discover it, and it should be named for you."

I could have gone over that field a thousand times and not have seen it. I therefore declined the honor. I relate this incident to show that he is more than generous. It may be a valuable find. At all events, he saved the seed.

(11) His discovery of the new Hubam clover has already been exploited in these columns. After his discovery of this wonderful plant he might have kept his secret for a year or two, developing quantities of seed, and sold it at fabulous prices; but, no. He gave the discovery and the seed freely to the world. Apparently the pleasure of benefiting farmers, and beekeepers, too, means a thousand times more to



Experimental beds in the background where Mr. Crites is testing out the various strains of Hubam as well as those of the biennial sweet clover. It was easy to see that there was a wide variation, some showing three times the growth of others. This only emphasizes that one buying seeds should obtain his supply from a reputable grower. The main Hubam field, Iowa strain, shown on the left.

State did not mature, and much of it spoiled in the crib after husking, he developed a plan for crib drying that enabled the farmers to save thousands of bushels of corn that otherwise would have been spoiled. This invention helped to feed a world torn by the ravages of war. This, likewise, was given freely to the world.

(8, 9) Prof. Hughes has discovered a new grass which he believes is far superior to timothy, orchard grass, or blue grass. He also has it in mind to develop, on the side, a new hybrid corn which gives unusual promise. From neither of these will a single pound of seed be sold. Like all his other contributions, both of these will be given freely to the world.

(10) Prof. Hughes and I were strolling over a patch of the Black Belt just south of Montgomery, Ala. I noticed him pulling up a yellow sweet clover (*M. officinalis*). His

him than the mere gathering together of a great mass of dollars.

After I had talked with him, slept with him, and eaten with him, I came to the conclusion that if there was any one characteristic that was more dominant in his make-up than any other it was that of benevolence—not in the sense that we ordinarily understand—namely, giving dollars—but in showing and helping his fellow man how to make them. It is that kind of benevolence that makes men who are useful to the world—not dependents.

I am glad to say that Prof. Hughes is one of the finest Christian gentlemen I ever met. He believes in the Sermon on the Mount absolutely, and he preaches it, not by words, but by acts. He has sown, and others are reaping.

The New Hubam in Ohio.

During the past few days it has been my

pleasure to visit W. L. Crites, president and manager of the DeGraff Food Co., DeGraff, O. He is another of God's noblemen. He is one of the few who, at the very beginning, fully appreciated the possibilities of Prof. Hughes' discovery of the new clover. He was not long in getting in touch with the Henry Field Seed Co., at Shenandoah, Iowa, who had raised quite a quantity of seed from a small package sent out by Prof. Hughes. This company raised so much that they were afraid they would not be able to



W. L. Crites and A. I. Root standing beside a vigorous growth of Hubam clover at DeGraff.

sell all of it. Mr. Crites, having supreme faith in the new acquisition, made arrangements by which he bought half the seed at a price that would stagger men of less faith. When the Field Seed Co. disposed of their half of the seed, before Christmas he sold back to them a part of his stock and sowed the rest. His company has now nearly 400 acres in and around DeGraff, O., under cultivation. While the crop did not "pan out" quite as he expected, he and his associates have some fields as pretty as any I have seen anywhere.



Early and late Hubam in rows side by side. Mr. Crites has his right hand on the former and the left on the latter. It will be observed that the late strain has two or three times as much actual fodder or humus as the early. The early variety matured so quickly that it goes to seed with a growth on the average of one-third of the late Hubam. This only emphasizes the fact that for northern growers the late variety is much to be preferred.

Mr. Crites was originally a soil specialist. He had some beautiful black lime land, and was not slow in getting seed in the ground. He put out about 500 acres in Ohio, about



Hubam on each side with biennial white sweet clover in the center—all planted at the same time. It will be noted that the Hubam on the right is larger than the Hubam on the left, illustrating the point that there is a variation between strains. The old biennial is very much behind either. A. I. Root is walking down the row.

500 in North Dakota, and another hundred in Texas. He has gone at this whole proposition scientifically in that he has one of the most extensive seed-testing beds I have ever seen. He secured seed from various sources, and is now testing them in these beds. He finds some very wide variations. Some selections breed true to the characteristics of the parent plants, while others do not. In his opinion the Iowa strain, as discovered by Prof. Hughes and which he is growing in his large fields, is a better one for the northern farmer than the majority of other strains. It is medium late, bushy, and leafy, making a much larger amount of humus or



One of the cages that Mr. Crites has scattered in the various fields of Hubam to test out the value of bees for pollinating the clover. It is a little early yet to determine just what is the gain from having bees, but it is evident that the Hubam under the cage will not yield near as much seed as that on which the bees can work. Most of the bloom under the cage had not set seed, while that outside, of the same age, had gone to seed.

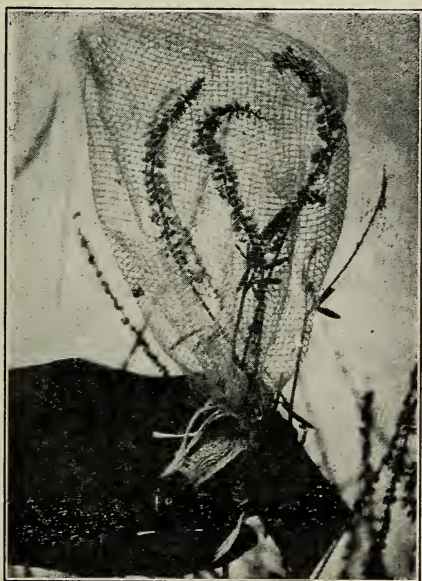
fodder than the early strains. Mr. Crites showed me side by side an early annual sweet clover and a late annual. The plants of the latter were two or three times as large. The trouble with the early strains for the North, said Mr. Crites, is that it matures so quickly and then goes to seed before the plant can attain any size.

He has wire-cloth cages scattered thru the mammoth fields of the annual sweet

clover. The mesh of the wire is just small enough to exclude bees but not small insects. So far the tests indicate that the plants available to the bees give from 20 to 30 per cent more seed. He has promised to give us the result in actual figures when the season closes.

The Biennial Versus the Annual Sweet Clover.

While in most cases the new annual clover is much superior to the biennial, there are cases when the latter is better than the former. The biennial springs up the first season, and blooms to only a very limited extent, then dies down, but leaves its root, which, however, lives over winter. The following spring it will produce another stalk that will grow very vigorously. For an early spring crop the biennial, on account of its large root from the previous fall and summer, has the advantage, but



In the test beds are several heads of Hubam that are covered with mosquito netting. This is to prevent cross-pollination and develop a seed true to type. The heads are then rubbed together inside the bag between the palms of the hands, thus bringing about self-pollination.

it takes nearly two seasons to get it. The average farmer wants something he can get in one year. It is here that the annual has the biennial beaten a mile.

The biennial and annual in the same locality can be so planted that one will succeed the other in blooming. The biennial, after the second year, will ordinarily come first; and as it begins to die down, the annual with the later bloom will come next, making a continuous flow of honey till heavy frosts come on.

Our readers will remember that we sent 200 colonies to DeGraff, O., and planted them right in the midst of 400 acres of Hubam. A few days ago I drove over to see how the bees were doing. Perhaps the most pleased person present was A. I. Root himself, who was with me when we looked into the hives. When sent down they were only three and five frame nuclei; but at the time of our visit the queens and the bees had brood in six and seven frames. At the end of two or three weeks, at the present rate, when this brood emerges, the hives will be fairly boiling over with bees. No surplus has been secured thus far, for the very good reason that the honey has gone into brood. The plants will be in bloom till heavy frost. Had we sent our strong colonies down there, doubtless there would have been a large showing in honey. As it is, we call our experiment with bees and Hubam an unqualified success.

The Hubam, where it can be grown, will furnish fine fall pasturage. Real honey in the hives will be much better than sugar syrup for winter.

Hubam at Medina.

We planted biennial and annual in the same fields at Medina on the 17th of last June. The annual is now, Sept. 6, waist high, while the biennial is hardly above one's shoe tops. Some of the annuals are now six feet tall.

The bees are very busy on the annual, working from early morning till almost dark. The land was plowed and harrowed in the usual way; and to give the new clover every possible chance about two tons of lime to the acre was harrowed in. It was put in with an onion seed hand-planter, rows 36 inches apart. Some recommend having rows 40 inches apart so that the ordinary farm machinery doesn't have to be changed.

Complaint has been made that the seed is so expensive. We put in about one pound of seed to the acre on half of the patch, and on the other half double and treble that amount. One pound to the acre makes the best showing with us. As seed can be bought in quantity at \$2.00 a pound, that much money to the acre is not expensive.

There was some doubt at the time we planted it whether it would mature in time to give a seed crop. Unless we have a very severe early frost we shall get a part of a crop if not a full one.

Caution.

It is probably fair to say that Hubam, or, for that matter, any sweet clover, can not be grown profitably everywhere. It can grow where any clover can be grown. There should be some lime in the soil—the more the better, and it should not be too wet. If the soil has not previously grown sweet clover or alfalfa, the seed should be inoculated. Your experiment station will tell you how to do this.

THE Republic of Mexico is, without doubt, one of the most picturesque countries of the world on account of its scenery and luxuriant

vegetation. Here we have all grades of climates—the tropical of the coasts, the temperate of the “Mesa Central” or central tableland, and the cold of the mountainous districts. The climate of the central tableland is delightful all the year around. Is it a wonder that our favorite insect, the honeybee, is doing well in this privileged country?

There is here a great variety of bees. The strain that abounds is the common black bee, which was imported by the Spaniards in the eighteenth century. This bee has multiplied itself to such an extent that it can now be found in every corner of the Republic. A great number of Indian farmers keep a few colonies in their back yards, usually not more than 10.

The Italian bee has also been imported in the last 10 years, but it is very difficult to keep the race pure because of so many black drones. A cross between the Italian and the black bee makes a very strong diligent bee, which can better stand the sudden changes in climate of the high tablelands where the days are hot and the nights sometimes quite chilly. However, most of the beekeepers prefer the pure-bred Italian because it is more gentle and therefore easier to handle.

Native Bees.

There are in Mexico several kinds of native bees. The only native bee of any practical value, however, is the stingless one which belongs to the genus “*Melipona*.” I encountered on my trips thru the country two species of this bee. The *Melipona* I found in the State of Guerrero was of a dark-yellow color, while the other species of Tabasco and Yucatan was of a gray color with five very narrow bands on the abdomen. Both species live in the hollows of forest trees. The natives cut these trees under and above the place where the swarm is, take the log home, and hang it up by ropes outside, under the roofs of their houses. The honey crop is very limited because these bees seldom gather more than from eight to sixteen pounds a year. The wax is very dark and is known in Mexico under the name of “Campeche wax.” The natives use it generally as glue with which they stick their advertisements on windows and walls. I once saw candles made from this wax.

The colonies are not very strong, and I never saw one with more than from 5,000 to 10,000 bees. The worker of the *Melipona* is smaller than the common honeybee work-

BEEKEEPING IN FOREIGN LANDS

Possibilities and Difficulties of Beekeeping in Mexico

By J. De Boer

horizontal instead of vertical and builds them one above the other. Each comb stands on a certain number of feet just long enough to permit the bees and the queen to walk between them. The cells are smaller than those of the common honeybee and at the first sight appear to be hexagonal, but on looking at the cells on the outside of the comb you see that they are cylindric. The combs are similar to those the wasp builds because they have cells on only one side. The *Melipona* fills three-fourths of the cells with jelly as soon as the cells are ready. Then the queen lays an egg on the surface of the jelly, and the cell is capped over with a very thin layer of wax.

The bees build their stores of honey and pollen on all sides of the brood cells. These cells for stores have the size and form of a pigeon egg. The honey is very thin and has sometimes a strong resin taste. However, I found *Melipona* honey in the State of Tabasco which could compete with the best-known honey. The pollen is sometimes eaten by the natives but has laxative properties.

The queen has not the grace of the common honeybee queen, because her swollen abdomen gives her the appearance of a spider. The swarm can raise another queen from the brood when the queen is lost by some accident.

Honey Flows and Honey Plants.

The honeybees in this country work almost the whole year round, because they are always able to find some honey in the field. Of course, I am speaking about central and south Mexico because in the north conditions are about the same as those in the southern parts of the United States. However, a regular colony in the coldest zone seldom consumes more than 10 pounds of honey in the winter time, and in semi-tropical and tropical zones they don't even touch their winter stores. There is only one honey crop in the colder climate in the months of September and October, and two or more in places lower than 5,000 feet above sea level. Honey flowers are so numerous that it would take too much time and space to mention them all. Those who want to know more about Mexican honey flowers can find details in the book I wrote on beekeeping called “*Las Abejas*.”

In winter the principal honey plants are the wild “*Reseda*” (*Reseda Luteola*), the hoarhound (*Marrubium vulgare*), wild turnip (*Brassica campestris*), and wild mustard (*Sinapis nigra*)—in the spring the mesquite and several less important ones—in

er. Her body is similar to that of the bumblebee and she stores the honey and also the pollen in egg-shaped cells. She makes the brood-combs

the summer and part of the autumn the Chayotillo (*Sycios angulatus*) and the wild sunflower (*Helianthus* sp.).

In the tropical zone there are plants producing honey all the year round, such as the different kinds of palm trees which bloom in every month. Another important honey producer of the tropics is the mangrove (*Avicennia Nitida*). Besides the great number of wild plants there are many cultivated ones which also produce honey, for instance: alfalfa, chickpeas (garbanzas), oranges, limes, coffee, bananas, etc.

A regular colony produces in the high tablelands an average crop of from 75 to 120 pounds of honey in a year, but in the semi-tropical and tropical zones the crop is almost twice as much.

Preparation of Colonies for the Honey Flow.

The colony should be ready for the spring crop the first days of February and for the autumn crop in the last days of August. To get the bees into the right condition in order to obtain the biggest crop possible, six weeks before the honey flow starts I take away all the combs with honey with the exception of two full ones, replacing them with empty worker-combs. The combs with honey are put against the walls of the hive, one at each side and the eight empty worker-combs are placed between them. The honey combs on the sides will protect the bees from chilly nights. I then start to give them every night a little thin syrup composed of one part sugar and two parts water. Honey may be used instead of sugar if it comes from a healthy colony, but sugar is better because it does not attract so many robbers. Only a small amount of syrup should be given in order to prevent the bees from filling the cells again with honey. I use this method when the colony is small. Of course, the queen must be vigorous and the colony not too small, otherwise it will be a failure. A regular colony will build up by itself and be in a good condition at the right time if it has plenty of stores.

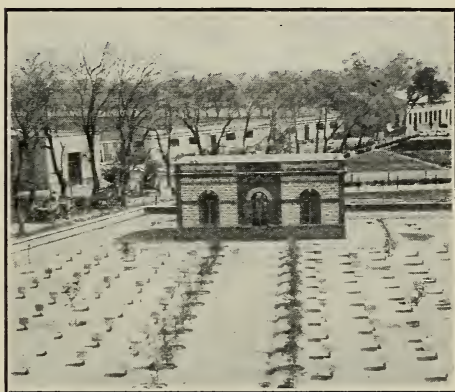
Swarm-Control.

Swarm-control, as in other countries, is here one of the most difficult problems. The natives who use small box hives have sometimes excessive swarming. The best way to have some control over swarming is not to use too small a hive. For this reason the Langstroth hive is too small for Mexico. The Jumbo hive with 10 frames is better adapted to this climate, and possibly a hive with 12 or 13 frames is still better. The Jumbo always gave me the best results, and when I was in the government service as a beekeeping expert and propagandist I recommended it always to my pupils, who adopted it almost without exception. It may be said that the Jumbo is here in Mexico the standard hive.

The prevention of swarming by the "shake," and "brushed swarm plan," gives here the best results, especially when the bees have already shown some intention of

swarming. Besides it is the right thing for a comb-honey producer.

When running for extracted honey I prevented swarming with great success by the following method: At the beginning of the honey flow before bees have started queen-cells, I open the brood-chamber of the strong colonies and take out five of the ten combs. Then I put in five frames with full sheets of foundation, alternating them among the brood combs. A queen-excluder is then put on this brood-chamber, and an empty body is placed on it containing the five combs previously taken out and five frames with foundation arranged in the same way as in the brood-chamber. The queen must remain below. In this way the bees have plenty of room, and there is no reason for their swarming.



Apiary and workshop of the School of Agriculture and Veterinary Science in Mexico City. A great number of nuclei was sold every year and sent to various states of the Republic of Mexico.

The honey market is somewhat limited in Mexico, because the Mexicans don't eat very much honey and only a few bakers use it. The Mexicans think that honey hurts the throat. This is because most of them have tasted only dirty press-honey sold by Indians, which irritates the throat on account of its impurities. Those who have had an opportunity of trying pure extracted honey sold by a modern beekeeper change their minds immediately.

Fortunately we have not so many diseases in the Republic as in other countries. American and European foul brood are unknown here. During the eight years I traveled thru the country I never found a case. Modern beekeeping has developed very nicely in the last 10 years. When I entered the government service as the first beekeeping expert in Mexico in July, 1909, there were only about five modern apiaries known in the Republic, the rest being composed of old box hives, which mostly belonged to Indians. At present up-to-date apiaries may be found in many of the various districts of the country.

Mexico City, Mex.



IS IT HEARTSEASE?

Should Beekeepers Use Common Name or Latin Name for this Plant?

The A B C and X Y Z of Bee Culture, as well as many other good authorities, call a certain honey-bearing plant "heartease." It would seem to matter but very little just what we call a certain article so long as we all understand what is meant by the name, but where do you get your authority for calling *Polygonum persicaria* heartease? I will admit that the name sounds better than smartweed when one is offering honey for sale; but why not call it polygonum honey? This would somewhat mystify the prospective purchaser, and that is what the average American seems to desire.

I have looked up all of the authorities within my immediate reach, and here are some extracts from them. Webster's Unabridged (not a recent edition) says:

"Heartsease—Ease of the heart, etc.; *viola tricolor*; called also pansy."

Chambers' Encyclopedia says:

"*V. tricolor*, the pansy, violet, heartsease, etc."

Then it goes on to enumerate the various violets, pansies (*viola*), and is entirely too long to quote in full. This same authority, under the head of "Natural order, Polygonaceae, gives a description of numerous species of this plant that corresponds to what we here in Missouri call "smartweed," of which some three or four varieties grow in this vicinity. This same authority includes buckwheat in this order, but does not anywhere in the description mention heartsease.

Henderson's Handbook of Plants says:

"*Viola*, violet, heartsease; pansy. The old Latin name used by Virgil," etc. Under this head Peter Henderson described many species of violet or pansy, but no mention is made of anything that corresponds to what we call smartweed.

Turning to *Polygonum*, natural order Polygonaceae, I find this:

"*P. hydropiper* is our well-known smartweed." On the opposite page is an excellent illustration of an ornamental variety having variegated leaves, which is very much like some of the varieties growing here. Nowhere, however, in the article referring to this order does he mention heartsease.

I believe the late Prof. A. J. Cook called the plant referred to "heartease"; but in glancing over his Beekeeper's Guide I fail to find mentioned either *polygonum*, heartsease, or *viola*. Now, is *polygonum* the same as heartsease, or is *viola* the same as tri-

color? One or the other must be wrong. I know that many plants have many different local names; but it seems to me that we beekeepers ought to know heartsease when we see it, and not call a plant heartsease when it is not so known to botanists.

As stated above, we have several varieties here on the Missouri River bottom lands as well as on the smaller streams. One looks very much like the cut in the A B C and X Y Z of Bee Culture, the flower being rather insignificant and of a greenish-white color, while the plant is rather coarse and large. I do not think this variety yields much nectar. From that we have varieties ranging up to one that bears a beautiful



Heartsease, sometimes called smartweed.

well-rounded-out flower of a delicate pink color. This flower is handsome enough to be entitled to a place in the flower garden. All of these varieties grow in great profusion on overflow land, and also more or less in cornfields after the last cultivation, as well as on wheat stubble when the land has not been broken too soon after the wheat harvest. Some years this honey is gathered along with boneset, and blends very admirably with it; but when the *polygonum* is in great profusion the bees seem to neglect the boneset and take almost exclusively to smartweed. The honey is pale amber in color, of good body when well ripened on the hives, and in quality, to my taste, it

FROM THE FIELD OF EXPERIENCE

ranks close to white clover. This and bone-set seldom fail to give a fair to good yield of nectar in this vicinity. S. E. Miller.

Answer by Lovell.

In the employment of the common or English names of flowers we are governed entirely by usage. There is no hard and fast rule as in the case of the Latin names. The same species may be called by a dozen different popular names, by one name in one locality and by another name elsewhere. Or the same name may be applied to three or four very unlike plants; for example, loosestrife is the name of three plants belonging to entirely different genera; fireweed, elder, dogwood, and clover are other examples. In all such cases we depend for the identification of the plant on the Latin name, which is determined with extreme care.

The English name "heartsease" is universally used by American beekeepers for the well-known honey plant *Polygonum persicaria*. It is always thus referred to in conversation and in our bee books and bee journals; and every beekeeper knows what plant is meant. This must be an old name for this plant, since it was invariably used by such a veteran beekeeper as Dr. C. C. Miller. This plant is also called lady's thumb, heartweed, and knotweed, all of which are given in the A B C and X Y Z of Bee Culture. The names heartweed and lady's thumb doubtless come from a dark-green irregular blotch or spot on the center of each leaf, which may be variously imagined to represent a heart or the imprint of a thumb. From this it was an easy step to suppose that the foliage was beneficial in heart troubles, and hence the name heartsease. The fact that the same common name is also used for the pansy makes little difference any more than in the case of fireweed and scores of other plants. Knotweed is a translation of the Greek word *Polygonum*.

This particular honey plant, *P. Persicaria*, should not be called smartweed. There are 24 species or kinds of knotweed or polygonum in northeastern America, and two of these *P. acre*—*acre* is Latin for sharp—and *P. hydropiper*—*hydropiper* is Greek for water pepper—are properly called smartweeds. The leaves are acid and pungent, due to small glands which secrete an acid. The name smartweed should be restricted to these two species.

The name commonly given in the botanies for the honey plant *P. Persicaria* is lady's thumb; but, in the matter of common names, in the case of the majority of species the botanies usually give no common name at all. For the most common plants they seldom give more than one or two English names; while, as in the case of the boxberry (*Gaultheria procumbens*), there may be a dozen. The name gallberry is not given in

the floras, but all beekeepers know a valuable southern shrub by this name. Its omission from the botanies is the result of indifference or an oversight. If we were to speak of *ilex* honey few would understand this name, and the same is true of *polygonum* honey. It is because we can not rely on the popular names for the identification of plants that we have the Latin ones.

Waldoboro, Me.

John H. Lovell.

ADJUSTABLE WINTER ENTRANCE

A Two-Colony Winter Case, Embodying Some New Features

My packing cases are modeled somewhat according to the description given in Farmers' Bulletin 1012, United States Department of Agriculture, but there are some differences. They are made 48 x 35 x 35 inches, and accommodate two two-story hives, side by side, facing south. The bottoms are made of rough lumber nailed to the two-inch surface of 2 x 4's in such a way as to make a rim extending around the outside, the 2 x 4's extending upward their full width. The hives are set on other 2 x 4's, so arranged that the bottom-board of the hive is level with the top of the 2 x 4's on the rim.

The sides and ends are all separate, and project below the cleats, to which they are nailed, about 1½ inches. When the cases are put together, these cleats set squarely on the bottom rim, while the sides overlap the rim 1½ inches. To nail the cases together requires just eight nails, one each in the four upper corners, and one each thru the center of each side and end into the bottom rim.

The cover is telescoping, and is made of pine flooring, covered with a cheap grade of roofing.

The tunnels are 8 inches wide at the top, and 6½ inches wide at the bottom, to allow for the projection of the bottom-board. They are 1¾ inches deep, and as long as the distances between the two side cleats of the bottom-board. One end rests on the bottom-board; the other on the rim of the case.

In the front of the case an opening, one inch wide and as long as the combined width of the hives, is made so that the bottom of the opening is even with the bottom of the tunnel. These openings are closed by doors, hinged at the top, and opening outward from the front of the case. Each door has four ⅜-inch holes bored thru it, connecting with the tunnels. In cold weather the doors are closed by means of a single screw; but, if there comes a day when the bees can fly safely, the doors can be opened, and the entrance to the tun-

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nels will be flooded with sunlight, so that the bees will be in full flight almost as soon as those in unpacked hives. In the spring, if the bees are getting crowded for more entrance space, all that is necessary is to loosen the door just enough so that the bees can pass between it and the front of the case.

While this case is rather expensive, my cases more than paid for themselves in increased honey production the first year. I have tried both flooring and ship lap for the sides, but prefer the ship lap because it is lighter in weight and less expensive.

St. Charles, Iowa.

Paul Laird.

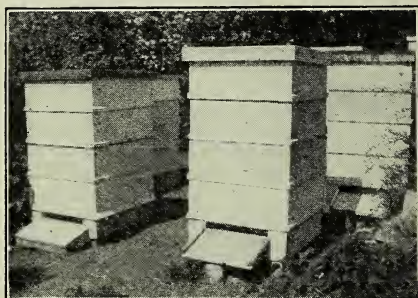
BUILT IN WINTER PACKING

How Uniformly Successful Wintering is Accomplished in British Columbia

The appliances and the methods used by W. J. Sheppard, Chief Apiary Inspector for British Columbia, were not evolved all at once, as they have been the result of several years of close study and numerous experiments, until a system was worked out, that, by its convincing results, in regard to good wintering and large honey crops, acted as such a strong inducement that almost every beekeeper in this territory has adopted it of his own free will. Now one can travel over this whole region and see a large number of hives, all looking the same and working the same. This, as most bee-

keepers know, is unusual among people who keep bees. This much desired uniformity reflects great credit on the educational work carried on by Mr. Sheppard with lantern slides and demonstrations.

It must be understood that this system was worked out entirely to suit the conditions in this particular region where the winters are long and cold, followed by a prolonged building-up time and a late honey

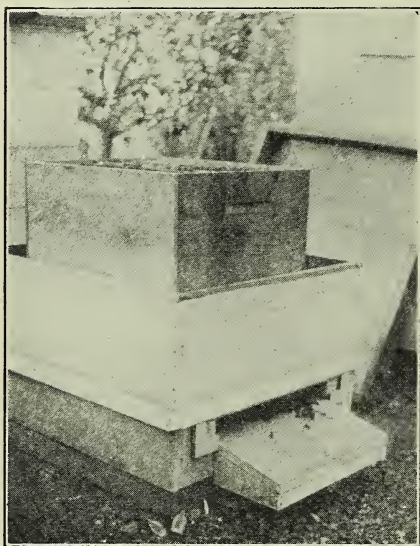


Extra stories are added to the outer case as additional supers are put on.

flow. The most striking example of the suitability of the system was the man who in 1919 obtained 2100 pounds of honey from three colonies, spring count, and increased to ten.

The backbone of the whole system is the Kootenay hive-case which is used all the year round and always kept packed. This hive-case provides a three-inch space for the packing all around the hive and has a packed bottom as well. The outer entrance is two inches high and extends three inches under the bridge to the hive-body. The entrance block fits in this space against the hive-body. The inside entrance cut in this block for winter use is three-eighths of an inch by three inches. A very useful addition that has been made, is a strip of glass covering the upper part of the outside entrance, leaving a three-eighth inch space underneath. This makes a sort of sun porch between back and front entrance, and in actual practice has been found to cause all dead bees to be carried out all the winter long. With this glass the bees also fly far less when the snow is on the ground.

The bees are wintered in a single ten-frame brood-chamber of Langstroth frames. In the spring a second hive-body is added, which the queen soon occupies; then just before the honey flow the queen is put down again, and an excluder is put on to keep her in the lower hive-body. Others are added on top as necessary. Extra stories are also added to the outer hive-case to keep pace with the supers; consequently there is no overheating from the hot sun, and the bees neither have to stay at home to keep up



The outer entrance is two inches deep, the upper portion being covered with a strip of glass in winter.

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the heat, nor to keep it down, as so often happens with the single-wall hive.

North Vancouver, B. C. Will H. Gray.

FALL TREATMENT

How American Foul Brood Can be Treated After the Honey Flow

The first thing we do when we find foul brood is to clean it up. We do not wait for a honey flow nor the spring of the year. If in the fall, we brush on frames with a cloth hung over each frame and let the bees stay there until they have used all of their honey. Then we give them two or three empty combs in the center of the hives for a winter nest, and fill up the balance with full combs of honey. We do the same thing in the spring before the honey flow.

If the diseased colony is a good, strong one and there is a honey flow, we use foundation; otherwise, we use the combs altogether. We brush the bees in the evening when all of them are at home. Then we know there will be no robbers to carry the diseased honey to their own hives.

Don't shake the bees but get a good bee-brush and gently brush them from the combs. We have seen beekeepers shake honey all over their clothes, shoes, and the front of the hive. Of course, other bees alight and sip up these drops of honey and take it home. If the honey is all sealed over then there can be no harm done in shaking them.

If we brush in the evening no robbers will be there. The bees are more apt to stay and by morning they at least get partly over their shock. If we doubt their staying, we shut them in and make them stay for 24 to 36 hours, then give them combs and we have never had one leave yet.

Parowan, Utah. M. L. Skougard.

WINTERING IN TWO STORIES

Some of its Disadvantages. Contraction of the Winter Chamber

For some years we have been advised by our bee experts in Washington to winter on two-story hives with two full sets of combs per colony. Mr. Demuth says the extra set of combs is a bee-feeder of the best kind, works automatically, and does not require refilling; but there may be some disadvantages to this arrangement.

When I go to bed on cold evenings I feel nearer comfortable when I have my bed-clothes tucked snugly around me, not hanging loosely over the bedposts. Twenty quilts applied thus would fail to keep me warm. Our old friend, A. I. Root, defended

this principle 45 years ago, and I believe he was right. I believe that the smaller the brood-chamber during the cold winter months, provided there are enough winter stores in the combs, the better will the bees endure this trying season. I can see no particular advantage in an extra large brood-chamber during the cold season, except that the bees may cluster high up away from the draft coming thru the entrance. Whenever I tried the double story I found this disadvantage: dead bees falling down, filling up the spaces between the combs, producing dampness and mould; whereas, with the single story, the larger portion of the dead bees are pushed out of the entrance.

I must admit I never used the excessive packing of eight inches. I call it excessive because I think eight inches of packing is more than is necessary. Of course it will make a difference what kind of packing is used. Three inches of chaff (clover hulls are fine) is probably the equal of eight inches of hay or straw. Eight inches of clover hulls or wheat chaff, in the light of my experience, I would consider excessive. I am loath even to try out an eight-inch packing of chaff when three inches seems ample in my yards in New York State.

When A. I. Root advanced the idea of winter contraction, tucking the quilts and chaff cushions around snugly, many of us followed up this theory. In October, when the brood-combs were free from brood we removed a portion of them containing the least honey, usually from the center, pushed the combs together, and filled out the spaces on the sides with chaff cushions. We wintered many colonies on five Jumbo frames very successfully, but when the number of our colonies and yards increased and we were lacking cushions (division-boards), and also on account of the extra work necessary to contract the brood-nests, we did not push the method. The disturbance of our bees so late in the season was another factor which caused us to content ourselves with wintering on our regular 8-frame brood-nest (Jumbo frames).

About 15 years ago I put quite a lot of sectional 8-frame hives into use, of which two are the equal of 8 L. frames. My bees in them with a moderate amount of protection winter well; the bee-space between the two sections seems rather an advantage. I rarely resort to three sections per colony, and then only if a colony is short of stores, when a section solid full of honey is placed on top. If these colonies were in the honey yard, I might take the bottom story out before packing. In mentioning what I have said I wish to tell only what our practice has been, not that we have followed the best methods.

My problem, as yet unsolved, is to know

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beforehand whether or not our bees will come thru with such stores as they may have. When the winter is over we know, but not before. If we should feed each colony ten pounds of sugar syrup late in the fall we might expect the bees would use this syrup first and pass the critical period; but we might have to keep up this practice for ten years in order to hit that one year when it would be necessary. This would be expensive. We have also wintered our outdoor colonies very successfully on the very poorest stores, honeydew, when a very favorable open winter happened to follow. All things considered, we have to admit that wintering bees is still problematical.

Naples, N. Y.

F. Greiner.

BEHAVIOR OF VIRGIN QUEENS

Do Worker Bees Prepare the Virgin Queen for Her Mating Flight?

On August 1, last year, I gave a 10-day-old queen-cell to a rather strong nucleus which had been formed on July 28 in the afternoon. I examined the nucleus carefully and saw that the combs contained only sealed and emerging brood, the combs used in forming the nucleus having been "ripened" for one week previously over a queen-excluder. On August 8, about 11 o'clock in the forenoon I opened the hive and found the cell empty. A little afterwards I saw the young queen coming across the comb, surrounded by seven bees which apparently pulled at her or tried to block her way, even when, as it looked to me, she was trying to get away from them. I first thought that it was the commencement of a balling of the queen, but thereafter that the queen had possibly returned from her mating trip and the attendants were now endeavoring to remove the appendages from the queen. However, no traces of such were to be seen. I looked closer and saw that while the queen was continually trying to cross the comb, the bees (three on one side of her, and four on the other) would stop her, and start to rub or clean her abdomen, from the thorax and down, sometimes with their antennae, but sometimes also with their tongues. Now and again the queen would put down her head to the comb, stretching her antennae forward and whirring her wings, at the same time either curving the tip of her abdomen forward, as does a bee when trying to sting, or raising the tip of her abdomen up in the air, as do the bees sometimes before moving into a new hive. After this had happened some six or seven times, the queen finally went to the top-bar of the frame alone, walking to the end where she suddenly, and to me quite unexpectedly, took flight, in a manner which I

cannot describe better than by saying that it looked somewhat like a butterfly sailing away. As I could not follow her flight, I stepped back and closed the hive. August 15 I found a queen nicely laying, which I feel sure was the same one which I saw flying away.

The case struck me as rather peculiar, but in reading Doolittle, the thought has come to my mind, whether the worker bees do not in some way or other prepare the queen for the wedding trip, perhaps even deciding the time? The passages I refer to in Mr. Doolittle's book read as follows:

"My hobby has been that of letting the queens fly out to meet the drones, the same as they always do, yet without despoiling colonies, by making nuclei to keep them in from the time they were hatched till they commenced to lay. My first plan was to take virgin queens from eight to ten days old, into the fields to places where I believed that drones congregated, by the loud roaring which I heard in high altitudes, between the hours of 1 and 3 o'clock p. m.

"I would then let them out of the wire-cloth cages which I had carried them in, leaving each one in a separate place, near some old stump or stone, from which they could mark the location of their cage. The queens would mark the place from which they went, the same as they would when coming from a hive, circling farther and farther, till lost from sight, some of them being gone a long time (long enough to meet a drone) when they would return and re-enter the cage, and if I was on hand they could be easily secured again; but I have to report only failure along this line. If allowed to do as they pleased, after returning they would fly out again and again, till they would finally go off, never to return.

"My next plan was to take a very few young bees and a little piece of comb in these cages, but with this I was no more successful. Why no queen should ever come back under such circumstances, bearing the marks of fertilization, is more than I can understand, yet such has always been the case.

"Thru the suggestion of Mr. A. D. Jones, I next tried putting the queen over a hive of bees, keeping her in a double wire-cloth cage, the wire cloth being so far apart that the bees from the hive below could not reach her, while an entrance was made from the cage to the outside of the hive thru a tube. Here the queen would stay, with no apparent desire to go out, any more than she would if she were kept in a queen-nursery till she was too old to become fertilized."

Does it not look as if the contact with the bees, or rather the non-contact, has been of consequence?

Alex Holst.

St. Thomas, Virgin Islands.

THE silver lining appears," says the editor of *Gleanings*, page 550 of the September issue. Let us all be very thankful that honey is so plentiful and the price so low that the poor as well as the rich may enjoy it and have an abundance. Our pocketbooks may be thinner, but our hearts will be enlarged and we the richer in the end. To feed the hungry and give drink to the thirsty are little virtues that pass at their full value in the next world, I have heard.



* * *

One cannot read E. R. Root's account of the Hubam sweet clover in September *Gleanings* without his pulse being quickened and life seeming more desirable, the possibilities and value of this clover appearing to be so great for the production of human food, as well as food for domestic animals and for enriching the soil. This plant is certainly great, and its discovery should mark a new epoch in American agriculture. Great as this discovery is, it thrills one even more to find such an unselfish whole-souled man as Professor Hughes in this self-seeking age.

* * *

H. F. Wilson makes some nice points in his article commencing on page 555. He would not do away with the middleman. "Brokers, jobbers, wholesale merchants, and retailers must be paid for their efforts, and they must have a small profit in order to do business. These agencies are absolutely necessary to get distribution, and can not be eliminated under our present marketing system." He is right. Let us not forget it, nor undersell them. He would have a standard tin package and would prefer two and five pound tins. We are using three and five pound tins and find them to work very well, altho the three-pound quart tins are a little small and difficult to seal when hot. On page 556 he says these tins can be easily sent by parcel post. He is right if we first put them in corrugated cartons and seal them. We sell lots of them in this way. He cautions against selling in large quantities at one time to new customers. Good advice. "Sell a new customer who is not accustomed to honey a sixty-pound can and be prepared never to sell to that customer again." It is better to sell sixty pounds in small lots as needed than a large amount at one time.

* * *

There are four long articles in September *Gleanings* in Bee Culture on marketing honey, which, if read and the advice given

followed, should dispose of hundreds of thousands of pounds of honey in the home market. I haven't room to review all the good things said. Every one

who has a large amount of honey to sell, or a small amount, cannot fail to receive benefit. Robinson Newcomb says on page 557, "It takes time for a motorist to make up his mind he wants to buy;" hence the signs should be in letters large enough to be read 400 feet away. "The sign can be read farther away if the letters themselves are dark; and it can be read later in the evening.

On page 559 he says: "Clear glass jars show up light-colored honey best. Slightly green jars may be used advantageously for honey that is very yellow, since the green glass makes yellow honey appear white." I wonder if this is quite straight. He does not approve of Sunday selling. Thinks it doesn't pay, altho he thinks more sales may be made on that day than on any other. "Roadside selling," he says, "is a big advertising work. Our signs remind passing motorists of honey day after day, bringing many to buy honey who would not otherwise have thought of it."

* * *

That is a right good article by D. L. Woodward on underground cellars. I wish I had one that would work as well. There seems to be some question whether an underground cellar will prove a success or otherwise. So far as I am able to learn, when such cellars are built in dry, gravelly, or sandy soil they prove a success, and when built on clay soils they are apt to prove unsatisfactory. I wonder if the soil makes the difference. I was in a winter repository a few weeks ago in the east part of our State where bees wintered perfectly. A good deal of the cellar was above ground but banked heavily, and the floor above was covered with sawdust.

* * *

Under the title page, "From the Field of Experience," is an article by my friend, A. C. Miller, that will give us beekeepers something to think about, but on reading it, it seemed to me that he was writing from the field of speculation rather than experience.

* * *

E. G. Miller says, on page 560, "The best advertisement is the honey itself." He, too, cautions against selling for family use in large amounts,

THIS picture of one baby admiring another was taken Sept. 3 in accordance with my promise to keep the Gleanings readers informed of the progress of the two fast-growing walnut trees which Mr. Luther Burbank sent me last November. The human baby was borrowed for two reasons:—she is more ornamental than a wooden yardstick, and as she is the great granddaughter of A. I. Root it seemed fitting that the achievements of two old friends should be shown together. She is exactly 37 inches tall.

Last November this particular tree was a mere twig with two or three fat buds near the end of it. When planted it projected not more than eight inches above the ground and had to be protected by wire netting to keep someone from stepping on it. It is the Paradox which is supposed to survive in climates similar to that of California. Whether it will survive one of our old-fashioned Ohio winters time alone will tell, but we are going to do our part by cuddling the trunk with a nice straw blanket inclosed in netting to keep out hungry rabbits. Unfortunately the photograph does not show the trunk, which has grown thick and sturdy, about an inch in diameter.

The hardier one of the two trees, the Royal, altho it looks perfectly healthy, has not made remarkable growth; but, from my experience with other shrubs and trees in our clay soil, I am hoping it will make up for it next year, in which case it shall have its picture taken too.

ADVERTISING has always interested me. When my favorite woman's paper comes—I have all of a half dozen favorites—I always glance over the advertising pages before I read

OUR FOOD PAGE

CONSTANCE ROOT BOYDEN
(Stancy Puerden)

keeper up to date on foods and their preparation and all household conveniences, and helps maintain her enthusiasm for her job.

Being interested in all advertising I have naturally given much thought to honey advertising, with the result that I am coming to the conclusion that we honey people are making a mistake when we push the use of honey in cooking in advertisements designed for the general public. This statement from a woman who was engaged to write a food page introducing the use of honey as often as possible sounds inconsistent, doesn't it? But you see this food page is for beekeepers' families who have an abundance of honey of their own and to whom it is frequently an object to use as much honey in cookery as possible.

In the first place, as I have said many times before, it is too bad to injure the flavor of fine honey by heating it to the degree necessary for cooking and baking, unless it is used in some dish which is very much improved in flavor or texture by the use of honey rather than sugar. It is degrading a delicious table sweet, all ready

for use, to the level of an inferior cooking syrup. Jams, fruit butters, and preserves may be used in cake baking and otherwise in cooking, but their use in that way is almost never mentioned in advertising them.

When honey is at its best in the natural state, in this age when we are constantly told by dietitians that we should eat more foods in the natural state, why should we urge housekeepers to regard honey as an ingredient of other



foods rather than as a most attractive and delicious food itself? I know perfectly well that it is now fashionable for food advertising to contain recipes or an invitation to send for a cookbook; but I am trying to make the point that honey is not in the class with baking powders, patent shortenings, pastry flours, and cooking syrups. I should class it with grapefruit, oranges, dates, fine marmalades, and choice candies, foods which are far too good to be used in common cookery, but which may be included occasionally in some exceptionally fine dish. Also honey has the advantage of the delicious but perishable fruits in that it will keep practically indefinitely and should therefore have a place on every housekeeper's emergency shelf, if it is not in daily use, as we beekeepers think it deserves to be.

In the second place, it is not quite as easy to cook with honey as with sugar, and for that reason I very much dislike to recommend to the general public many of the cake recipes which call for honey. Lest some of you fortunate beekeepers who are married to expert honey bakers think I am talking heresy, let me tell you several incidents, out of dozens I could relate, to prove my statement.

A friend, who is a competent housekeeper and one of the best cake makers I ever knew, recently said to me, "Do you still recommend honey for cooking and baking purposes?" Then she went on to say she had bought a ten-pound pail of honey during the sugar shortage of the war and that she had never had any success in baking with it, altho she used recipes from a honey cookbook; that most of it was left in the can and she did not know what to do with it. That extracted honey had any use except as a cooking ingredient did not seem to occur to her.

A year ago I gave a can of Cream of Honey to a friend. You may recall that I described Cream of Honey some time ago in one of these articles. For those who did not read the former article I will explain that Cream of Honey is the trade name of an especially fine article of crystallized or candied honey which has been brought to an exquisite fineness and smoothness by a special process. Next to a perfect section of comb it is my favorite honey and I often give it to my friends. On the outside of the lithographed can are three recipes which I worked out to please a certain honey man. Some months afterward I met my friend and she said, "I am ashamed to say that I have not yet tried that Cream of Honey. I have been so busy that I have had no time to try new recipes, but I mean to soon." And then I discovered she supposed it was not ready for use, that she inferred it was similar to the marshmallow cream which is sold for cake filling, puddings, and the like. She was delighted to find that it is at its best as a spread for bread, biscuits, waffles, etc.

The editor who engaged me for Our Food Page more than four years ago has a wife who is a far more competent cake baker than I am (I might not be quite so ready to admit it if I thought that editor was likely to read this), and she insists she cannot make as good a cake with honey as without. Just among ourselves, I am quite positive she could bake certain varieties of cake with honey, if she tried hard enough, but I am telling the story only to illustrate my point. If Mrs. Editor is not very successful baking with honey, do you imagine that women who are not especially interested in promoting the use of honey are going to make an effort to use it? Notice I say "make an effort." Many housekeepers delight in trying tempting new recipes calling for novel ingredients, but if they fail on such a recipe they are not going to try that ingredient a second time. That is why we should be so careful that only safe recipes, worked out with accurate, level measurements and standard proportions are recommended to the general public.

When I read a honey advertisement which recommends honey for cooking and includes an impractical recipe, a recipe with which I know I should fail myself, it makes me feel that such advertising is certain to prejudice housekeepers against nature's finest sweet. For instance, white or light colored cakes which are raised with baking powder are extremely difficult to make with honey as the only sweet. I am going to admit right now that I have never baked one which I called a success. You may argue that this proves that I am not an expert honey baker, but you must admit I can probably do as well as the average housekeeper, and if I fail Mrs. General Public is likely to fail also.

Frostings or icings made entirely of honey or with a very large proportion of honey are also very difficult to make. The syrup must be boiled to a higher degree than a sugar syrup or it will be of that exasperating type which gradually but surely runs off the cake or sinks in and out of sight. At its best, honey frosting is sticky and not apt to find favor with anyone who is not an enthusiast for the honey flavor.

While delicious preserves and jellies may be made with honey they are more difficult to make than with sugar for the reason that honey scorches easily, and even if it does not scorch it is apt to acquire a caramel flavor and darken unless done with extreme care. You and I may be willing to give that care to attain the result with its honey flavor, but again I do not believe the general public would be apt to do so.

AFTER saying so much about what honey advertising ought not to do, it is quite time to consider a few of the things it ought to do, isn't it? I firmly believe that the very best way to popularize

(Continued on page 659.)

THE sideline beekeepers of the country are like a big affectionate family. Drawn together by bonds of enthusiastic interest in the same great live subject, they are necessarily interested in one another's experiences. Which is why this department is this month beginning a short series of sketches of sideliners, big and little, known and unknown men, women, and children (almost).

John Bieseman's Three B's.

The three R's have long been famous for their unpopularity with many younger generations of civilized races. It is the three B's that hold the attention of John Bieseman of Hemlock, O. "Birds and Bees and Blossoms"—thus he enumerates his three great interests. What a combination that is! He is a photographer, too, and his charmingly harmonious sidelines, the three B's, are made still more fascinating by the pictures he takes, often catching and preserving bits of perfect but transient beauty otherwise lost.

Being a specialist in any line is commendable, of course; but to be a specialist and nothing else must be most tiresome. "The world is so full of a number of things" that any limitation of interest, any "circle premature," is like a thief stealing from us some of the wealth that is ours, some part of our ancient divine inheritance. To claim an interest in the three-fold world of bees, birds, and flowers is to make oneself master of the very heart of this ancestral domain.

Blossoms.

Mr. Bieseman's interest in flowers and his careful observation are shown in a letter written to help establish the identity of a plant unknown to a fellow beekeeper. "I have only on two occasions found this plant in our locality," he wrote, "both times near the edge of a wood. The first time I met several plants growing together on almost bare ground, where potatoes had been grown for two years previous. This was new ground—forest trees had been felled (the pity of it!) just prior to the planting. These were fine specimen plants, apparently the select of their growth; square stems of a wiry appearance, and the leaves, very inconspicuous, lent it a skeleton appearance. The flowers, small and a purple red, were the curiosity of the whole. The entire plant presents a striking, singular appearance, and I was attracted to it by many bees. If this plant were of a weedy nature it would surely have accumulated here; but the following year and the next, no trace of them could be found."

Then, after chatting easily about the

Beekeping as a Side Line

Grace Allen

Pulse family and the Figwort family and the Mint family and Mrs. W. Starr Dana's book, "How to Know Wild Flowers," he runs on into bee talk, of queen-rearing and winter packing and foul brood, or, another time, into bird talk.

Birds.

"We have had a variety of birds in our yard for the last few years. I commenced to attract them during the winter, which can be done at the window shelves, to the great entertainment of the occupants within. We have quite a variety of birds that nest in our yard. A number of years ago a pair of phoebes brought their fledglings to our home apiary next door to me and they were seen to catch workers which they fed to their young. I have not observed them in our yard since. These birds nest from overhanging rock, and also where they find shelflike room on architecture, away from sight of human presence. Just now a robin, a woodthrush, and a white-throated sparrow are diligently searching the garden ground within a few yards of my window. Insect life is bound to be reduced here where they glean for such morsels several times a day; and when they have young, they will need ever so many more. . . . You can learn quickly what feeds to put out during the winter to have the choicest of small birds around you. Almost all the insect-eating birds will eat suet during the winter; sunflower seed is the staple bird food here; nut kernels also by many; hemp is also much eaten. A bird in the yard is worth two in the cage, as to entertainment and economic value. These winter-feeding birds are far in advance of others in early song and nest-building. The cardinal, song sparrow, and others are singing as volubly now (February) as if it were springtime. They will build their nests close by and feed their young from insect life around us, thus freeing our crops from much injury. . . . This morning I had a mocking bird in the yard close to the cottage. It ate from the branches of bitter-sweet berries which I have on the feeding shelves."

Bees.

Altho his father had been a beekeeper for years "in a more primitive way," having once as many as 70 hives, it was not until 1916 that Mr. Bieseman began keeping bees after his own fashion, with modern hives and progressive methods. Because of a steep rocky hillside, he placed his hives in long close rows, on such stands as he could devise to fit the requirements. There, packed in dry leaves in long sectional cases, they meet the snows and winds of winter.

He has reared his own queens, and has decided from careful records and observations that his losses of virgins were not to be laid to birds. Many beekeepers, he is convinced, lay their ill success in queen-rearing on the birds, when the birds are not to blame.

He had an interesting experience in the summer of 1920. Some old homemade hives were stacked up by the side of the barn. One day he noticed some bees, evidently scouts, inspecting this stack; and two days later in came a good-sized swarm of hybrids. He took them from this hive, set them where he wanted them, and requeened them. A few weeks later scout bees came again to the same top hive on the stack, and the next day came another swarm—black this time—"totally black—from some distant tree. These last were amusing to me; being the pure blacks, they showed traits so different from my three-banders. Wherever there was anything to rob, they were always first."

Unfortunately he has had to fight American foul brood for the past two years—



How John Bieseman helps his bees meet the snows and winds of winter.

discouraging work for the sideline bee-lover. If it continues in that territory, requiring treatment each year, he says he will keep only a few colonies, as "I never care to treat 26 hives with combs again as I did last summer; this is some weary toil."

A Pair of True Amateurs.

In the unforgettable year of 1914, when men

"... heard the news, and went discouraged home,

And brooded by the fire with heavy mind," Mr. and Mrs. John T. Carlyle, successful stage people living in Detroit, went to East Jordan, Mich., and bought a ten-acre piece of real earth. Their first summer there they started their beekeeping career with two colonies. In the summer of 1920 they had 33 colonies and an equally increased enthusiasm. Every autumn in late September, before leaving their summer work-and-play-ground for their winter's work, they pack their bees safely away in quadruple

winter packing cases, and face the foot-lights thru the coldest weather with easy apiarian consciences. Then in May, when their season is over, they come back to their bit of earth, where there are greenness and birdsong and silence and sun on the grasses and the miracle of growing things. And they promptly unpack the bees, for "of course," writes Mrs. Carlyle, "our 33 colonies come first and foremost. I love bee culture, and almost everything else on the place seems a waste of time compared with the bees." There speaks the true amateur beekeeper.

And catch the enthusiasm of this: "We have had lots of wonderful experiences this year. During the past two weeks I have extracted (during Mr. Carlyle's illness) 850 pounds of honey from 17 supers. We have to put the escapes on 9 more supers, as we wish to extract again on Friday. Once we had two swarms at the same time. One we saw issue, and we caught her Majesty and caged her, and hived the swarm by removing the parent hive to another stand and releasing her Majesty in the empty hive; we gave her a frame of brood later to keep the dear nurse bees busy. Upon finishing that swarm in a most scientific manner (we think), there was another great big swarm, something mammoth! We could not get a good negative of it as everything seemed to be moving at once (we included). We had not the remotest idea where it came from. We made a journey from hive to hive and everything seemed to be peaceful, happy, and busy in all of them. So we shook the swarm from the apple tree into an empty ten-frame hive, and later gave them a frame of brood to keep the nurse bees happy."

Might not that take even the most staid and unthrilled professional back to his own early experiences, when just to open a hive was exciting and every separate incident was an adventure?

Then there is their fun of marketing. "We have not sold it to any stores, just to the summer resorts around here. We have a Ford and use that for our 'Honey Trips'—always taking between two and three hundred pounds with us and *always* selling out before we return home. It usually takes us about half a day to sell out these amounts"

Now Mr. and Mrs. Carlyle might go to some resort for their vacations and spend most of their time playing golf. That, however, would mean a considerable expenditure, whereas the bees may come to mean a considerable income. Moreover, this sturdy simplicity of living brings its own great spiritual income, too, of large satisfactions and renewed reverence and inner peace.



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—It is never a pleasant task to depict unfavorable conditions. We have now practically pre-war honey prices and, if there be any difference, it is between the amber and white grades. The amber grades are just about where they were six or seven years ago, namely, around 6 cents per pound; but the white grades, principally sage, are somewhat higher in value. The widening of the gap between these two grades is probably due, on the one hand, to the increased consumption of white honey put up in various-sized small containers; and, on other hand, to the part in which low-priced sugar can play as a substitute for the amber grades. A good quality of sage honey is selling for 9½ to 13 cents per pound wholesale Sept. 5.

When we consider what it costs us to produce honey it would appear, other things being equal, that we must produce approximately twice as much of the amber as of the white-graded honeys. The producers of sage honey might tell us that, in order to break even this season, their bees must yield 120 pounds per colony. The alfalfa producers would then demand two cases to the colony; but, as a matter of fact, the yield is going to be about one-fourth that amount. The alfalfa producers have lost money. What are they going to do? Sell their bees? No, they are not going to do this. In the first place, there is no market for bees, and yet most of the beekeepers have confidence in the future. Some believe that by means of a co-operative honey exchange, properly handled, they will get a better value for their product. (They are certainly right in this belief, and it is to be hoped that concerted action will be brought about in this respect.) Others have the feeling that migratory beekeeping will better their conditions; while still others feel that they will do better by practicing better beekeeping generally.

Our best beekeepers know that honey cannot be produced this year for a cost of six cents per pound. The market and the season are variable factors. Good beekeeping practices mean a very great deal—they may mean a doubling of the crop; and, as important as they are, the beekeepers must also know what their honey is costing them to produce.

Altho the honey market is variable, due to supply and demand, etc., beekeepers nevertheless can exercise a very beneficial influence thereon. The logical method is for a co-operative honey exchange to market the honey, as by this means a better method of distribution is brought about and the cost of marketing is much more economically handled. The worth of a co-operative organization to beekeepers is dependent on

the board of directors, and it is the duty of each and every member to see to it that five or seven of the best men among them, regardless of popularity, are selected to the directorate. It is likewise necessary for the members so selected to serve to the best of their ability, and not plead that they are preoccupied along other lines. To recapitulate, we must ever attempt to improve our beekeeping practices, keeping a close watch all the while on our maintenance and operating costs. Increased production, a lowering of cost, and marketing co-operatively are three serious considerations pertaining to our industry. Let us give them a very large part of our time. M. C. Richter.

Modesto, Calif.

* * *

In Southern California.—Again I am spending a month in the Sierra Nevada Mountains, miles away from the sound of automobile horn or telephone bell. The fishing is still good in many of the mountain streams, and the many-colored leaves on the mountain sides make a most beautiful picture.

We came by what is known as the Coast Route, which brought us thru some of California's most productive honey territory. It is only in a very few localities that anything like a satisfactory crop was produced.

The Imperial Valley did not get as good a crop as was at first supposed, unfavorable weather being one of the principal reasons.

Prices are firmer, and considerable honey has been moving, but there is nothing in particular to get excited about.

The bees are in only fair condition, and many beekeepers will find it to their advantage to feed some of the lighter colonies.

Riverside County is putting on quite an exhibit at the State Fair. Among the interesting features will be a date tree with 1,000 pounds of dates on it. The beekeepers are also putting up quite a fine display. C. B. Baxter of Corona has been sent by the Riverside County Club to place the exhibit, and also to talk bees and honey to the visitors of the Fair. L. L. Andrews.

Corona, Calif.

* * *

In Texas.—The present condition of bees in Texas is just about normal, and the bee plants are in practically the same condition. While it is extremely hot and dry, it is the normal condition of this part of the world at this time of year. The majority of the colonies stored a fine supply of honey early in the summer, and where they were not extracted too closely are yet in fine shape. One of the things which is feared is that too many of the colonies have crowded brood-nests



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on account of the sudden flow which came before supers enough were given to the bees. This condition has existed, but it will affect only those yards which are not handled by well-informed beekeepers. Unless we have some rain within the next two weeks there will be no fall flow from broom-weed or the sumacs, as these plants are now in poor condition; and, if their blooming is delayed by a lack of moisture, the honey flow will come too late for the bees. Some rain between now and the middle of September may induce a second blooming and some honey flow from the early spring plants, such as catsclaw, huajilla, and mesquite. The cotton section of the State has not produced a very abundant flow, because of the ravages of the boll-weevil and the dry weather. What the fall flow will be from cotton depends on rain between now and the middle of September.

Lloyd R. Watson, apiculturist at the Texas Experiment Station, has just put into operation one of the most unique pieces of apparatus ever used in bee investigations. This instrument consists of a 500-pound capacity Toledo automatic scale, to which is attached an automatic register controlled by an eight-day clock. This scale is so sensitive that 250 bees leaving the hive will cause a movement of 1-32nd of an inch in the line on the record sheet. To one who is accustomed to watching bees, it is very easy to interpret the action of the bees just by observing one of these records, as the flight of the bees in the early morning, the beginning of the storage of honey, the slacking away of work during the heat of the day, the return of the bees from the field at night, and the evaporation of honey during the night are all plainly shown. Mr. Watson and Dr. Tanquary, Chief of Division of Entomology, are very enthusiastic over this scale and believe that it will give some very important information on bee behavior within the next two or three years.

The United States census report gives Texas first place in the number of colonies of bees owned on the farms, with 235,111 colonies, and ranking second in the amount of honey produced, having 5,026,095 pounds to her credit. She also ranks second in wax production, having produced 93,822 pounds. This gives the State an average production of 21 pounds per colony which is 62% gain over 1909. While Texas decreased in the number of colonies of bees 1.3%, she increased in honey production 62.5%. This is due very largely to the work of the Extension and Experiment Station and of the bee journals. Beekeepers learned thru these agencies to use modern methods and to requeen annually.

It was very fortunate for the beekeepers

of the State that Bexar County saw fit to elect E. G. LeSturgeon as one of its legislators. The foul brood and experimental apiary appropriation was saved thru his efforts, and an additional \$4,000 was appropriated to augment the foul brood inspection work.

The beekeepers of the United States who are members of associations would be much interested in reading a bulletin sent out by the Aberdeenshire-Kincardineshire Beekeepers' Association of Scotland. This is a pamphlet of 75 pages of printed material and 50 pages of advertisements. This beekeepers' association started in 1910 with only 95 members and in 1920 possessed 1640 members. The annual dues to the association are 60 cents. This association maintains its own paid inspectors, does its own extension work, and maintains its own honey and bee exhibit every fall. The association is divided up into sections and each section has its own secretary.

San Antonio, Tex.

H. B. Parks.

* * *

In Michigan.—Honey is being sold locally as never before. The demand for retail glass and tin packages is said to be the greatest ever. This surely is a very desirable condition of the industry and one that has long been desired. Probably not more than from 10 to 15 per cent of the Michigan honey crop ever goes into the wholesale markets. The lower that percentage can be reduced, the greater will be the beekeepers' prosperity.

The above paragraph is written with the supposition that the producers retail their honey at retail prices and not at wholesale prices. The facts are that many are retailing their honey at less than a reasonable wholesale price. Fortunately this is not being done by a large number, but unfortunately at least one such person seems to be present in nearly every county. The probable reason is that some have more honey this year than they ever dreamed that they would produce; others are terribly frightened by the falling prices and are trying to unload before the price gets still lower. It is unfortunate that producers do not make a closer study of economic and market conditions. Our greatest financial experts say that when prices do stabilize, they will be about 60% above pre-war levels. They also say that the bottom has been reached in foods. If these two statements are true, then some of our producers are going to find themselves in a rather embarrassing position a little later on. They are now retailing at pre-war prices. They are giving their customers to understand that they can continue to buy at the same price or less. If prices stabilize within the next year or two at the level indicated above, then there



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will have to be some pretty difficult explaining done by some beekeepers when they do finally attempt to get the market price for their product; or they will continue to do business at a loss and make themselves a nuisance in the business, as they are now. Better not cut prices too far; it is easier to lower the price later, if conditions indicate it, rather than to have to try to raise the price after having established a lower level. The public accepts the cut in price with smiles, but when the price has to be raised then often frowns and the loss of customers are the result.

The fall flow has been the best ever. Every part of the State has been blessed with an unusually heavy flow of nectar from goldenrod and other fall flowers. Yields of as high as 150 pounds per colony have been reported, but such are doubtless unusual. It is likely, however, that good colonies have stored an average of from 40 to 50 pounds. The fall flow is much earlier than usual. The honey is being thoroly ripened and should make first-class winter stores. However, many have learned by long experience that the fall honey is never as good as the white summer honey. It may, therefore, be well to supplement the fall honey with a feed of 10 pounds or so of granulated sugar syrup, in order to be sure that the bees may have a pure food, at least during the fore part of the winter.

Excepting the doubt that may be experienced regarding the fitness of the fall honey for winter use, the conditions in the colonies seem to be excellent for wintering. Heavy brood-rearing is going on all over the State. An increasingly large number of persons have requeened many of their colonies during July and August. Nature has made all the provisions she can for good wintering—now it's up to the beekeeper to give the bees the protection they need.

East Lansing, Mich. B. F. Kindig.

* * *

In Ontario.—At beekeepers' conventions and other places where the members of the craft happen to assemble, one often hears the expression, "We had a most peculiar season." There is no question in my mind but that the reason for this expression being heard so often is because the business is so uncertain and subject to so many factors, such as seasonal and climatic conditions. This year has been no exception, and it can be truly said that here at least, we "had a most peculiar season." After nearly 20 years of commercial beekeeping (and by that I mean during the time we have made our living from the bees), never before in all this time have we had a light clover flow all thru August, and never before have we had any swarming to speak of. In fact, a swarm in August was

almost an unheard-of happening in this section.

This year the second crop of sweet clover bloomed during most of August and gave a light honey flow. Alsike clover, seeded in the spring, came up after wheat was cut and bloomed freely—in fact, is still blooming at this date (Sept. 9). The long-continued light honey flow caused swarming at two yards, and on Aug. 25 when I went to one of these apiaries I found five large swarms hanging in the apple trees there. Seemingly they were loath to go and find a home in the trees at that late date in the season, as the limbs they were clustered on had wax plastered on them, showing that they had been there for a day or so. I had been at the yard four days previous, so they had swarmed during that time. Colonies have an abundance of bees and brood—in fact, too much to allow us to feed very early for winter this year.

Market conditions have changed but little since last month's report. While prices are about the same, wholesale and retail men say that there is a great lot of honey moving for table use at present. In fact, they think that more is being used than at any previous time. Fruit is rather scarce and not any too cheap, while honey is cheaper and of good quality this year. These factors undoubtedly help to cause the great demand that Ontario is now experiencing.

The Ontario Beekeepers' Association has a very fine exhibit at the Canadian National Exhibition now being held in Toronto. Those in charge report heavy sales of honey at the booth, as they saw fit to pay for a concession allowing them to sell, anticipating that there would be a big call for the honey. Results have justified paying this rental, as they will dispose of enough honey to have profits to well high over the expenses of the exhibit.

This annual exhibition, with an attendance running over a million each year, is possibly the best advertising medium that can be secured to bring the merits of honey before the people. While there, it was my pleasure to meet Mr. Spaulding, who is in charge of The Root Company's exhibit in the same building with the honey. A continual group in front of the Root exhibit testified to the fact that the public were interested in the educational features that made up a big part of this display.

While we have a big crop in Ontario as a whole, and while prices have dropped, yet after all we have much to be thankful for, as honey has not dropped as much as certain farm products. If cheaper containers and supplies were in sight, no one would complain about how soon we got back to normal.

An event of a few days ago that causes



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much merriment when mentioned in the family, but which, by the way, was rather serious at the time of staging for the act, is possibly worth recording for the benefit of others who do things in a hurry sometimes and then have to repent at leisure, as is the case very often with me.

Our Jersey cow has been tethered in a meadow just south of the apple orchard, and, while grass there is luxuriant, her taste for apples has led to much trouble, as she will persist in breaking from her moorings and gorging herself with apples at every opportunity. One day last week I happened to glance over to the orchard, and noticed that she had broken loose and gone into the orchard again. She was still attached to a 20-foot chain fastened to her halter, and on the end of the chain there was a 9-foot post which she could drag along, after training, with as much ease as tho it was a match instead of a heavy post. I was busy, the day was hot, and I was out of patience with the cow and her actions; so I promptly started in double-quick time to remove her from the orchard and at the same time administer some corporal punishment. I do not know whether the bovine species in general understand telepathy or not; but one thing sure, that particular member of the tribe understood what was in my mind, for long before I got to her she started to run towards a melon patch some 200 feet away and some 88 colonies of bees adjacent to the melon patch. I started to get ahead of her, but she outran me. My first concern was about the melons; but when she made a straight drive thru them, slashing melons as she went with the dragging post and making no signs of a halt as she got near the bees, I soon forgot about the melons. She made a straight run down between two rows of bees with 25 colonies in each row, and then halted at the end before a board fence. With 20 feet of chain and a big post at the far end, I mentally began to compute what was going to happen when she made a right-angled turn between the hives in either row. But she suddenly decided to turn right about face and go back, seeing no opening at the end of the road she was traveling. She made the return trip safely to the end of the row, and then suddenly turned off sharply as she got out from between the rows. The flying post caught squarely the last hive in the north row, sending the super about five feet in the air and turning the brood-chamber upside down. The post stalled against an obstruction and held the cow—but only temporarily.

In an instant the air was filled with bees trying to find the cause of the wreck of their home. Incidentally I might say they found the "cause" in a hurry, as cow and

her owner can testify. She has been fighting flies all summer, but this brand seemed to surprise her, for she gave one snort and with a heave loosened the stalled post and started to go again. We are all familiar with the famed cow of nursery rhyme that jumped over the moon; and, while the moon was not in evidence just then, I am fully convinced that under the circumstances she would have tried to jump over it if given an opportunity. She promptly negotiated a row of packing cases, going right over them, and then cleared at a bound or two the peak of the roof over the bee-cellar. The post stalled on the opposite side of the cave, and as soon as possible I unloosed the snap from her halter, when with tail over her back she made off as fast as possible from the scene of her frolic.

This happened at the time of a honey dearth, and I was afraid of a bad robbing spree if I did not get the hive fixed up soon: so without hat or veil, and covered with perspiration I righted the hive and put the super back on. Needless to say I got a fearful stinging, my head in particular being filled with their daggers. The morals to be taken from this story are obvious. Some which might be mentioned are these: If cows or other animals are tethered near the bees, see that thy cannot get loose. If they do get loose and you have notions of reproving them in a forcible way, be sure you have hold of the cow before you let her know your intentions. As to the stinging, I had a headache for an hour or two. Aside from that there were no particular symptoms noticed as directly caused by the stings, altho I suspect the good wife might say that I was a bit crankier than usual for the next few hours.

Markham, Ont.

J. L. Byer.

* * *

In North Carolina.—Honey production is far below normal this year thruout North Carolina. Some apiaries in the northeastern section of the State near the Dismal Swamp report fair yields, one apiary producing an average of 44 pounds of comb honey per hive, making over two tons of comb honey from this apiary. Others in the same section report yields that compare very favorably with this good record for a very different honey year.

The flow of honey in the central and upper Piedmont sections of the State was very light. Only those who practiced really good beekeeping methods obtained anything like a creditable surplus crop. Crimson clover increased the yield in many localities. In fact there are reports from localities where clovers were available for the bees that showed 100 pounds or more per colony, that is for individual colonies. The



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average yield, of course, was considerably under this high record for the season.

The cotton blossoms yielded nectar quite freely in many of the central and Piedmont sections of the State, some beekeepers reporting as much as 30 to 40 pounds of surplus from individual colonies from the cotton bloom.

Reports show that in the mountain sections of the State the flow was far below normal, as it was also in the coastal section. One mountain apiary of 54 colonies reports 1700 pounds of honey, about one-third of a normal yield. Thru all the mountain region the honey flow was light, only those who practiced the best methods of beekeeping getting any surplus honey at all.

Estimates by those in best position to judge indicate that about 40 per cent of a normal honey crop is being realized by the North Carolina beekeepers. Fall flowers in many sections are yielding considerable nectar, but this may be cut some by widespread dry weather prevailing in many sections recently.

In spite of the serious handicap of heavy curtailment in honey yield beekeepers in various sections are making their preparations for the annual honey and bee products display at the State Fair in Raleigh during the week of October 17-22. There are cash prizes aggregating upwards of \$150, including first, second, and third awards for various types of honey and bee products. R. W. Etheredge of Goldsboro is again director for the bee and honey exhibits, and C. L. Sams, North Carolina bee specialist, is the superintendent for the 1921 display. Last year this division was really one of the sensational developments of the State Fair from the viewpoint of increased proportions and improved individual exhibits, one beekeeper alone having installed an exhibit larger, as well as finer, than the entire bee and honey exhibits in previous fairs.

This year, of course, honey, both as to types and quantity, is much scarcer, but several of the larger beekeepers are preparing to go to the fair with the most creditable showings possible, and the management of this division of the big show are very sanguine of scoring another decided success.

In spite of the poor honey profits this season many beekeepers are practicing improved methods. They are requeening and otherwise improving their colonies in preparation for a possible bumper crop of honey next spring. Many beekeepers, who have persisted in keeping bees in old gums or box hives, have at least made a start in getting them into improved hives, even tho in some cases they have made their own hives, buying only the Hoffman frames and foun-

dation to give their bees the new start desired. The well-directed efforts of State Bee Specialist C. L. Sams and the co-operation of the State Beekeepers' Association, headed by Bruce Anderson of Terra Ceia as president, are piling up evidence of the effectiveness of persistent and well-directed effort for better beekeeping.

Wilmington, N. C.

W. J. Martin.

In Louisiana.—The State of Louisiana is now coming into her own as the land of the honeybee, and this is being brought about by boys and girls who are members of the bee clubs and are raising bees according to the most up-to-date methods. There are at present more than 350 members who are doing work under the supervision of E. C. Davis, bee specialist, Louisiana State University.

It was the pleasure of the 605 boys and girls attending the eighth annual boys and girls' short course at the Louisiana State University, July 28 to August 3, to hear E. R. Root give a talk along the line of the work he loves so well.

While there was only a small percentage of the club members present doing bee-club work, it is an assured fact that all of them returned home with the desire planted in their hearts to secure as soon as possible at least one hive of bees and next year to become a member of the bee club.

In his talk Mr. Root told how greatly he was impressed with Louisiana as a future bee State. He said that every day he was learning to change his ideas and opinions as to just what is the best section of the United States to keep bees. In one of his books he stated that white clover honey is never produced in any large quantities in the South, but coming to Louisiana he finds that this clover is one of the most valuable honey-producing plants the State has.

He congratulated the bee-club members on the fact that so many of them are keeping bees in a scientific manner, and said while he had come South to speak to adult beekeepers who were holding their meeting at the same time, it was worth the trip to speak to children who knew so much about the honeybee.

A parade of all the club children was held, each member marching behind a float representative of the work being undertaken. Mr. Davis decorated a float in an attractive manner, placed a number of the girl members upon it, and labeled it "A Carload of Honey." The others marched behind bearing banners, upon one of which was printed, "Governor Parker was Once a Beekeeper."

Baton Rouge, La. Bentley B. Mackay.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Honey Granulates Soon After Extracting.

There is something peculiar about honey here. As soon as it was extracted it commenced to candy even when kept in a very warm place, while honey left in combs kept in the attic where it was very cold did not candy. Even the unsealed cells are liquid. The honey that was cut off in the uncapping does not granulate as long as it remained with the cappings; but, as soon as it was separated it began candying. Isn't this strange? Some years our honey does not candy at all.

A. W. Lindsay.
Detroit, Mich.

the last three weeks beat the record for honey. I am wondering if the same conditions prevail at Middlebury, Vt., which is not more than 70 miles south of here. If so, Mr. Crane must be most happily disappointed this time.

J. Raymond Ball.
Knowlton, Quebec.

Excessive Swarming in August.

Here it is the last week in August, and our "home yard" of bees is just now breaking a June swarming record. We have had from two to five swarms a week now for the past three weeks. Young queens, extracting from the upper stories, and plenty of extracting room given by tiering up do not quell it. New swarms with young queens swarm again in two weeks after hiving. Our only explanation of this mania is that a very large acreage of cowpeas is in close proximity to our yard. Our Monroeville yards, as also our Atlantic County yards near Mays Landing, are doing only a normal fall gathering of nectar.

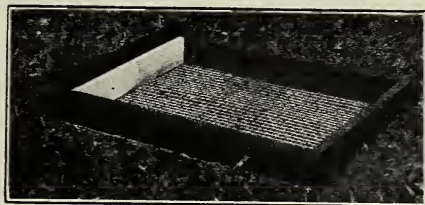
C. L. Hill.

Pennsrove, N. J.

Do Poor Seasons Follow an Early Spring?

J. E. Crane of Middlebury, Vt., in July Gleanings states that spring opened unusually early, and that alsike clover was blooming June 1 when only a few inches high. He goes on to state that we rarely or never get a good honey season following an early spring. Well, those same conditions prevailed here in Knowlton—very little rain in May, less in June, and for the last three weeks not one-fourth inch has fallen; but during every day for more than two weeks strong colonies have stored on an average just about 10 pounds a day, mostly from white clover. I now have 2,500 pounds of as nice honey as I ever saw extracted, with at least twice that amount still in the supers, and during every day for the last weeks the mercury has stood at 90° or better in the shade. I have done some hustling, as well as some sweating, but it's no use—the bees are well ahead of the game, as lots of the supers are crowded with honey. This is true not only of the supers but of the brood-chambers as well, and the consequence is that colonies in that condition are swarming galore. I have kept bees for more than 40 years, but

Packing the Hive-stand. The accompanying illustration shows a simple and effective plan for bottom packing. A partition is placed across the hive-stand so that it will come just under the front end of the hive-bottom, and a piece of galvanized wire netting is stapled over the bottom of the hive-stand. The stand is then ready



Hive-stand arranged for bottom packing.

to be filled with packing. The hive will keep the packing dry, which would not be the case if the packing extended under the alighting-board. In case the packing should get wet it will speedily dry because of the netting, which will also keep out the mice. The packing can be left permanently.

Brookhaven, L. I., N. Y. E. M. Barbeau.

New Era in Beekeeping in Western Washington.

The biggest handicap to beekeeping here is foul brood. Both American and European are to be found everywhere, and until more funds are forthcoming from the State to cover adequate inspection and education it will continue to spread. The greater portion of bees are kept by farmers in box hives, and no attempt to care for them other than "robbing them" is made; while here and there is a "bee master" fighting the great odds to hold his own.

Fruit bloom and white clover which generally yield us considerable surplus are a complete failure this year on account of continued rains; but most of us are putting our hopes in a good fireweed flow, altho many tell me it will take the most of their flow to put their bees in condition for winter. But in spite of these great discouragements we are looking forward to a new era of beekeeping in western Washington, for to us it is truly the "land of milk and honey."

J. G. Neeley.
Olympia, Wash.

QUESTION.
—Is the skin of peaches originally broken or punctured by some other agency when bees work on them?

D. A. Moran.
Pennsylvania.

Answer.—Yes.

The bees are unable to puncture the skin of sound fruit but work on it only after the skin has been punctured by some other agent or becomes broken because of being over-ripe or because of some fungus disease.

WINTERING DISEASED COLONIES.

Question.—Would you advise treating colonies having American foul brood this fall or would they probably last until another honey flow?

Kentucky.

Thomas Kennedy.

Answer.—By all means the colonies should be treated this fall. Disease is spread about every year by attempting to winter colonies having American foul brood. If the colony has been greatly weakened it is almost sure to die, and the bees from other colonies rob out the honey that remains, thus carrying the infection to other colonies. If you have some combs filled with honey you can treat diseased colonies, after brood-rearing has ceased, by shaking them from their combs into an empty hive, leaving them a few hours, and then giving the combs filled with honey. The combs from which the bees were shaken should, of course, be destroyed as soon as free of bees.

TRANSFERRING IN THE FALL.

Question.—Is it too late to transfer a colony of bees from a prostrate tree trunk to a hive?

New York.

Charles E. Robbins.

Answer.—You can transfer the bees even this late provided you have combs of honey on which to hive the bees when you take them out of the log. It will be better, however, to leave the bees in the log until spring before transferring. You can saw off that portion of the log which contains the colony and take it home for winter.

BLEACHING TRAVEL-STAINED COMB HONEY.

Question.—How can I bleach travel-stained comb honey so it will be white? Mrs. A. K. Bradley.

Wisconsin.

Answer.—You can improve the appearance of travel-stained honey by placing the sections in a window in direct sunlight for several days, but the stains cannot be bleached out completely. Some travel-stain will bleach but little even when exposed to the sun for a long time.

WRAPPING HIVES IN BUILDING PAPER FOR WINTER.

Question.—Will a good grade of roofing paper wrapped around the hives give ample protection for winter?

Texas.

T. J. Hughes.

Answer.—Roofing paper wrapped around the hives without any packing material between does not add materially to the thickness of the hive walls and therefore cannot be of much value in preventing the escape of heat thru the walls of the hive. If there

GLEANED BY ASKING

Geo. S. Demuth

are cracks in the hive or between the cover and the hive-body that are not filled with propolis, the paper would, no doubt, be of considerable ben-

efit in preventing the escape of warm air thru the cracks; but, if the cracks are well filled with propolis, the paper would be of no benefit in this respect. The greatest influence the building paper can have is thru its color. The black paper would absorb more heat from the sun than the surface of a hive painted white. While this may be beneficial in some cases, a violent warming up of the hive every day the sun shines, may cause the bees to be too active. It would be better to put packing material between the paper and the hive.

HONEY STORED JUST BEFORE COLONY BECOMES DISEASED.

Question.—I have a super full of honey that was stored and sealed before the colony contracted American foul brood. It is still on the hive but separated from the brood-chamber by two shallow extracting supers. I need this honey for stores. Will I run a great risk by using it?

Ohio.

Dorothy Lewis.

Answer.—It would not be at all safe to use this honey to supply stores for your other colonies. No doubt this disease was present in the hive for some time before you discovered it, and there may be plenty of spores of this disease in the honey now stored in the super.

WINTERING IN TWO STORIES.

Question.—Will it be all right to pack my bees just as they are with a full-length super of honey on top and leave them packed until late next spring to save labor?

Vermont.

N. H. Wilson.

Answer.—You will, no doubt, be pleased with the results of wintering your bees in two stories provided you give them sufficient protection. The only objection to this plan is that of the increased amount of room in the hive during the winter, but you can overcome this to some extent by increasing the thickness of the packing. When colonies are prepared for winter in this manner they should need no further attention until just before your main honey flow next season.

QUEENLESS COLONIES FOR WINTER.

Question.—What can I do with a colony that has been queenless all summer? It seems to have lots of bees.

Ohio.

Jennie Ballinger.

Answer.—If the colony has been queenless all summer there is nothing you can do now to make a good colony out of it, because the bees are all too old to survive the winter and it is now too late for them to rear enough bees to make a winter colony, even if you were to give them a laying queen. Are you quite sure that this colony is queenless? Or are you assuming that they are

queenless because you do not find brood in the hive at this time? Colonies that have been queenless all summer would not have many bees left in the hive, for most of them would have died of old age by this time. If your colony has really been queenless for a long time, you may as well unite it with some colony that needs more stores. The bees are of no value.

BEES TEARING OUT BROOD.

Question.—Why do my bees uncap the brood-cells and kill the young larvae, both drones and workers?
S. S. Wilson.

Mississippi.

Answer.—No doubt your colonies were threatened with starvation at the time you saw them uncapping some of the brood and dragging out the immature young. During cool nights in early spring or late in the fall it sometimes happens that some of the brood is chilled, in which case the bees will carry out the chilled larvae or pupae. In the fall just at the close of brood-rearing, bees often neglect some of the brood in more remote portions of the hive when they first form a cluster, leaving portions of the brood outside.

STRANGE ODOR IN APIARY.

Question.—What causes the peculiar odor about my hives? It does not smell like foul brood altho I can smell it 20 feet away.
D. D. Houghton.
Ohio.

Answer.—The odor which you notice is, no doubt, from the ripening of nectar gathered from fall flowers. Sometimes when bees are working on fall flowers the odor given off while ripening the nectar can be detected a considerable distance from the apiary.

SWARMING OUT WHEN WELL SUPPLIED WITH HONEY.

Question.—Why should my bees swarm out in August, deserting their hive and 20 pounds of honey?
O. A. James.

South Dakota.

Answer.—Bees will swarm out and desert the hive even when they have plenty of honey, if badly infected with American foul brood. It will be well for you to examine the combs to see if they contain evidences of this disease. If you are unable to recognize American foul brood by an examination, it will be well to send a sample of comb containing dead larvae and pupae to Dr. E. F. Phillips, Bureau of Entomology, Washington, D. C., for examination.

WHY NOT PACK EARLIER?

Question.—In the literature I have read, I don't see any advocacy of early packing and would like to know what is the objection, if any.

New Hampshire.

R. G. Ring.

Answer.—There is no objection to packing the bees early provided you can have a large entrance until the arrival of colder weather. Some prefer to pack their colonies in September, tho most beekeepers prefer to do this early in October. In some cases the packing is built in as in double-walled hives, so that the bees are really packed all summer but the entrances are enlarged during the summer.

USING EXTRACTING COMBS FROM DISEASED COLONIES.

Question.—Would it be safe to extract the honey and use the combs again that were taken from a colony having American foul brood but above a queen-excluder?
Harrison Robertson.

Kentucky.

Answer.—It would not be safe to use these combs again. The queen-excluder does not prevent honey from being carried above after having been stored below temporarily. The honey in these combs could easily be a source of infection, even tho no brood has been reared in them.

SAWDUST OR FOREST LEAVES FOR WINTER PACKING.

Question.—Is sawdust just as good for packing bees for winter as forest leaves?
C. H. Gebhardt.
Wisconsin.

Answer.—There is probably but little difference in insulating value between sawdust and forest leaves. Sawdust is more inclined to absorb moisture than forest leaves, if the winter case is not properly constructed. Some beekeepers prefer a mixture of sawdust and planer shavings. When forest leaves are used they should be crushed as fine as possible, so that the packing is not too loose.

STORING COMBS OF HONEY DURING WINTER.

Question.—What is the best way to store combs of honey during the winter to be given to the bees in the spring?
J. E. Fenton.

Michigan.

Answer.—The combs of honey should be stored, if possible, in a warm room where the temperature does not run below freezing. If a heated room is not available the combs may be stored in a basement, preferably near the furnace. If they are stored in a cold room there is danger of the honey granulating during the winter. Combs of honey should never be stored in a cellar that is very damp, for in this case it would absorb moisture from the air and might become so thin that it would sour. A closet adjacent to a chimney would be an ideal place to keep combs of honey, especially if the supers of honey can be piled against a chimney that is warm all winter.

MOVING BEES SHORT DISTANCES.

Question.—How can I move my bees a short distance (15 to 60 feet) in order to have them in groups of four to pack in quadruple winter cases?
Connecticut.

Harry S. Ferry.

Answer.—You can move the bees a few feet each day that they fly freely until they are finally where you want them. You can even turn some of them around to face in the opposite direction by turning them a little each day. When the hives are so far apart as yours are, they can be moved from three to five feet at a time, if there are no trees or other objects to help the bees locate their old position. Another way to do this is to move the bees to another location several miles away, leaving them there for a couple of weeks, after which they can be brought back and placed where desired. In the meantime the bees will have forgotten their former location and will mark their new location when released.

THOSE who have followed these talks and who have acted on the advice given in August and September in regard to leaving plenty of honey in the hives after the middle of August (not less than 15 or 20 pounds) and having a good queen, preferably young, should now have their colonies in good condition for winter so far as young bees are concerned. But if on account of a poor queen, queenlessness, not enough bees, or a lack of stores, any colonies have failed to rear young bees during the past six weeks, these colonies are in a poor condition for winter and it is now too late to retrieve the situation. Even if several such colonies were united they would still be made up largely of old bees, most of which would probably die of old age before midwinter.

Thruout a large portion of the country, especially in the northeastern part, there has been a fair fall honey flow. This has stimulated brood-rearing in September, so that there are plenty of young bees now, even in colonies having old queens or having but little honey. In some localities late brood-rearing has been excessive, many colonies having seven or eight frames of brood, the rearing of which caused them to use a large amount of stores. In such cases the colonies are in excellent condition so far as young bees are concerned, but they may have used up so much of their honey that it will be necessary to feed them for winter.

In some localities where the fall honey flow was abundant many colonies swarmed late in August or early in September, thus complicating the problems of the beginner and lessening the chances of good wintering. In the case of colonies which swarmed in August and were prevented from sending out after-swarms, both the swarm and the parent colony, especially the latter, may build up strong enough for winter if conditions are favorable. But in this case there are two queens laying eggs instead of one, and two large families of young bees being reared as well as two colonies to be supplied with stores for winter and spring, so that unless the fall honey flow has been heavy such colonies may need to be fed for winter. If after-swarming was not prevented and the original colony divided itself up into three or four small colonies late in August or during September, these should be reunited to form one good colony, as described last month.

Suspension of Brood-Rearing During Winter.

Thruout the North the bees usually cease rearing brood entirely early in October and begin their long winter rest. If all goes

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well during the winter they will not begin brood-rearing again until March; but, if the winter is severe and the bees age rapidly because of poor stores, lack of

protection, or lack of numbers to keep up the warmth of the hive, they may begin to rear brood again in February or even in January. In the South brood-rearing is continued until later in the fall and is begun earlier in the spring, thus making the period of rest shorter. Other things being equal, the better the bees are wintering, the longer they will refrain from brood-rearing.

If the bees lived only as long in winter, as they do when quite active in summer (six to eight weeks), it would not be possible for the colony to survive. But by remaining quiet they are able to prolong their lives four or five times as long, thus enabling the colony to survive until brood-rearing can safely be resumed in the spring. Bees do not hibernate in winter, as do many other insects, but when conditions are favorable they remain almost motionless for long periods, living so slowly that they do not age materially until they become more active in the spring.

Formation of Winter Cluster.

On cool mornings when the temperature outside is near freezing, the bees will leave the remote parts of the hive and form a cluster. If the hive is single-walled this tendency to form a cluster is more marked than if the hive is double-walled. The size of the winter cluster depends upon the temperature of the hive as well as upon the number of bees which form it, the cluster being smaller when the temperature is lower.

The winter cluster should occupy at least five or six of the spaces between the combs when the temperature outside is near freezing, tho it must be remembered that a small cluster of young bees may be better able to withstand the winter than a large cluster of old bees. When the bees have worked late in the season on late-blooming flowers, almost all the older bees may have worn themselves out and have disappeared from the hives, leaving chiefly the young bees at this time, while if they have been idle many of the old bees may still be present.

When the hive becomes so cold that a compact cluster is formed, it is located on that portion of the comb having empty cells, this being where the last of the brood emerged. If the colony has plenty of honey the cluster will be formed toward the front of the hive near the entrance, since the honey was stored above and back of the brood; while, if there is less honey, the cluster will be located higher and farther back

in the hive. In the double-walled or any well-packed hive the cluster will extend out over the honey, in some cases nearly filling the brood-chamber even on cool mornings.

It is usually better to unite colonies which do not occupy at least five or six spaces between combs, the small colonies can be wintered by reducing the brood-chamber to fit the cluster. This can be done by taking out the combs not occupied by bees and filling this space either with chaff division-boards or a tight-fitting board with packing material, such as dry leaves, sawdust, or planer shavings, filled in the space back of it. The cluster of bees should touch the sides of the hive on cool mornings in October, and by reducing the size of the brood-chamber even small colonies can be made to do this; but, of course, it is much better to have larger clusters so there is no need of reducing the space in the hive.

Winter Stores.

In addition to having plenty of young bees to form a good-sized winter cluster each colony should have plenty of good honey sufficient to last them not only thru the winter but also for their early spring needs. To determine how much honey is in the hive weigh an empty hive without frames, add 10 pounds for the weight of the 10 frames and comb and about five pounds more for the weight of the bees and some pollen. Knowing the weight of the hive, combs, and bees, the weight of the honey can be easily determined by weighing the hives containing the colonies. If platform scales are not available for this purpose the weight can be determined near enough by ordinary spring scales, weighing one end of the hive at a time by hooking under the end of the hive-bottom and lifting up just enough so that it will clear the hive-stand. Add the two weights thus secured together. This sum is about the total weight of the hive, bees, combs, and honey. After subtracting the weight of the hive, combs, and bees there should be a difference of from 30 to 40 pounds for the honey. If there is less than 30 pounds, more stores should be given early this month. If frames of honey are not available for this purpose, the bees should be fed a syrup made of two or two and one-half parts of granulated sugar to one part of water.

To make the syrup, first heat the water to the boiling point, then add the sugar, stirring it until the crystals are dissolved. To reduce the tendency of this heavy syrup to crystallize in the combs a teaspoonful of tartaric acid for each 15 or 20 pounds of sugar used should be dissolved in a little water and added to the syrup. When this is done the syrup should again be heated to the boiling point, or nearly so, to hasten the action of the acid. If the syrup is not made heavier than two parts of sugar to one part of water and the colonies are strong, especially if they are packed for

winter before feeding, the acid may not be necessary, since under these conditions the bees will modify the syrup as they store it, reducing the tendency to crystallize.

The syrup can be fed to the bees in 10-pound honey pails having perforated lids, about 100 small holes being punched in the lid by means of a small nail. When the syrup has cooled enough so it does not burn the hands the pail, filled with the warm syrup and the lid in place, should be inverted and placed directly on top of the brood-combs in an empty hive-body or above an escape-board having the bees-escape removed, the pail being placed directly over the hole in the escape-board. In the latter case a little syrup should be poured into the hole in the escape-board to start the bees to work promptly. The bees will take the syrup thru the holes in the lid, but the syrup can not run out if the holes are small, being held by atmospheric pressure. The space in the upper story around the feeder should be packed with old clothes, burlap, or planer shavings, to keep the syrup warm until the bees have had time to carry it down.

Winter Protection.

The final requirement for winter is that of protection. While in exceptional cases bees may be wintered out of doors even in the northern States in the regular summer hives, it is not safe to attempt to winter them in this way. Farther south the bees may apparently winter well in single-walled hives during an occasional open winter such as last winter. For this reason beekeepers in the middle latitudes are too often tempted to leave their bees unprotected year after year, hoping that the winter will be mild. Except in the extreme South it pays well to provide some kind of protection for the hives in addition to that afforded by a single thickness of lumber. This may be given by the use of double-walled hives or by packing the regular single-walled hives in winter packing cases, as described elsewhere in this issue; or in the far North by carrying the hives into the cellar next month, to be left there until the latter part of March or early in April. One would naturally think that putting them in the cellar during cold weather would be the best way to winter the bees, but successful cellar wintering depends upon having so many things just right that the beginner will do well to winter his colonies outside unless located where the winters are extremely severe. Bees can be successfully wintered outside, if well protected, even in the most northern tier of states and parts of Canada. The hives should be packed on all sides and top with several inches of finely crushed forest leaves, dry sawdust, a mixture of sawdust and planer shavings, or some such material, avoiding coarse material such as straw or corn fodder. The entrance should be reduced during cold weather to about $\frac{3}{4}$ inch by 2 inches.

THE total amount of honey imported into the United States during the fiscal year ending June 30, 1921, was 452,983 gallons, or over 5,000,000 pounds, according to figures recently given out by the Bureau of Markets and Crop Estimates, U. S. Department of Agriculture. In addition to these imports from foreign countries, large shipments were received from Porto Rico and Hawaii.

* * *

L. B. Crandall, bee specialist at Connecticut Agricultural College, calls the attention of beekeepers of his State to a public act of 1919 which requires all owners of bees to register before October with the town clerk the number of hives owned. Owners of bees who fail to register are liable to a fine of not more than \$5.00. The records of bee registration are open to the public, and when complete registration is obtained Connecticut will have annual data on the bee industry as reliable as can be found anywhere.

* * *

The American Honey Producers' League has submitted the following news items:

The first of the League advertising appeared on page 141 in the September number of Good Housekeeping. The advertisements will be followed up by circular letters by the League to the retail and jobber trade. In addition to these recipe articles other articles of interest on beekeeping will appear in a large number of the home magazines. The epidemic of ordinances against beekeeping is still in evidence, and the League secretary aided by men prominent in beekeeping lines has been very successful in causing many cities to abandon these ordinances. Prof. H. F. Wilson is securing the promise of the more prominent speakers who attend the State Beekeepers' Association meetings that they will attend only those whose dates are on the schedule made by the committee headed by Prof. Wilson. This is a very important move, as it cuts down the travel and expense of the speakers, and at the same time makes it possible for States to obtain speakers which they could not have if their meetings were held at another time. In another year the League hopes to put out in full a schedule of dates to all speakers. The Kansas Honey Producers' League announces that it has completed its affiliation with the American Honey Producers' League. This was done under the leadership of Dr. J. H. Merrill. The Bureau of Markets of the United States Department of Agriculture already sees the value of the American Honey Producers' League. In the August 20th number of the Market Reporter occurs the following para-



graph: "The American Honey Producers' League, which is a super organization of the beekeepers' associations of the country, has outlined plans for

an increased advertising program during the fall and winter, and, considering the fruit shortage, honey may move at better prices by winter." The reward notices to be posted at apiaries have found favor with the beekeepers. Numbers of them have been sent out. Any beekeeper who is a member of a State Association that is affiliated with the League can secure these notices from the secretary by paying 10 cents each for printing and transportation.

* * *

The Northern Illinois and Southern Wisconsin Beekeepers' Association will hold a meeting in Memorial Hall in Rockford, Ill., on Thursday, Oct. 18, 1921. Beekeepers are requested to bring honey and bee fixtures for a small exhibit. B. Kennedy, 416 East State St., Rockford, Ill., is secretary.

* * *

President J. W. Barney, of the Florida State Beekeepers' Association, announces that the second annual meeting of the association will be held at the University of Florida, Gainesville, on October 6 and 7; last year's meeting was also held at Gainesville and the attendance amounted to over 150 beekeepers. Altho it was the first meeting of the new organization, enthusiasm reached such a point that the sessions lasted far into the night, and all declared that the State Association was the one thing needed to put Florida beekeeping on its feet as one of the really worth-while industries of the State.

* * *

The September (1921) Monthly Crop Reporter, Bureau of Markets and Crop Estimates, United States Department of Agriculture, reports the average yield per colony to Sept. 1 for the United States as 40.5 pounds as against 51.9 for 1920 and against a five-year average of 40.4. The yield to Sept. 1 is estimated to be 87.4% of the total yield for the season. Among the States, Nevada is credited with 85 pounds per colony, Idaho and Wyoming 80 pounds per colony, these being the highest yields reported. While the yield for 1921 to Sept. 1 is only 78% of that of 1920, the number of colonies is greater, being 107.4%, so that the indicated production of honey to Sept. 1 this year is 84% as great as last year's yield. The condition of the colonies is reported 90.9% against 97.2% for 1920, and against a five-year average of 90.7%. The condition of the honey plants is reported to be 77%, as against 85.8% in 1920 and against a five-year average of 76.5%.

I HAVE tried to have some bees in the old-fashioned way, thinking to let them take care of themselves in old box hives, and never go about them until I wanted some honey, then get it and run; but I found out, after I read up, got some standard hives, and had my bees transferred, that there is but one right way in everything."—Mel Swallow, Spencer County, Ind.

"I hope you can put in a good word at Washington for the beekeepers of this country in regard to a protective tariff on honey. We surely need a protective tariff on honey if we need tariff on anything."—Gilman F. Egge, Minnehaha County, S. D.

"I wrote you last summer of having discovered the annual white sweet clover growing here in my garden, and of Prof. Hughes coming here and pronouncing it absolutely pure. We afterward found a considerable quantity growing near here."—F. A. James, Hale County, Ala.

"I got for winter protection some corrugated paper boxes and set the hives in pairs. I covered the hives with this corrugated paper and covered this with tar paper. I believe the corrugated paper next to the hives is a good protection. I also had the hives well protected around the bottom. If a great number of hives are to be protected it would be quite a job to cover them this way, but I believe it would pay."—A. L. Timblin, Douglas County, Nebr.

"In a poor season, like the last, when the clovers and other flowers, from which our lightest-colored honeys are obtained, do not yield much nectar, the bees have to go further afield and seek inferior sources of supply that would most likely be neglected in a good season. Catnip grows wild in some districts, and is responsible for much of this inferior honey. A very little nectar from this plant is sufficient to give a strong flavor of peppermint to the whole honey crop."—W. J. Sheppard, British Columbia.

"I saw the mating of a queen about 20 feet up in the air above a little cherry tree. There was a big bunch of drones and the bees are all Italians the great majority of this bunch were black. The queen and drone fell at my feet, and when free the queen flew straight toward a certain hive. The result is hybrids in this hive. This bunch of drones came from my neighbors' hives one to two miles away. That is why I buy all my queens."—Stephen J. Harmeling, King County, Wash.

"Oscar Poe, who has 1400 stands of bees on farms between Chamberino, N. M., and Canutillo, Texas, reports that his first ex-

BEES, MEN AND THINGS

(You may find it here)

tracting this season yielded 50,000 pounds of high-grade honey. The Poe apiary is the largest in the Mesilla Valley, in which this year's output is

estimated at from 200,000 to 255,000 pounds."—August Wolf, Dona Ana County, N. M.

"I am of the opinion that many bees here in the State will starve the coming winter unless they are fed."—A. E. Crandall, Hartford County, Conn.

"We have had a wonderful honey flow here this year, first from mesquite followed by a fine flow from cotton. My average per colony is 100 pounds."—J. P. Caldwell, Coleman County, Texas.

"We are now getting the bees ready for winter, and taking the small amount of honey which they can really spare, and our crop may yet be one carload, if the west yards are, as usual, heavier than those east of here."—E. F. Atwater, Meridian, Ida.

"I started my increase the first of July instead of August and they are in fine condition. With a Boardman feeder on each one the queens are filling the combs with brood, as plenty of fresh pollen is coming in."—W. T. Rabb, Travis County, Texas.

"We have had an excellent season for honey. During the clover flow in June and July beekeepers reported seldom seeing a bee working on either the white clover blossoms or on the alsike, yet they rolled in a large quantity of fine white honey."—Harold A. Breisch, Schuylkill County, Penn.

"My present effort in beekeeping began four years ago when I was 79 years old, with old box hives. I now have five 10-frame Langstroth hives, 5 Danzenbaker, and 5 box hives. I have been an invalid for 22 years, but am in better health at present than during all these years, and am now past 83 years old."—E. J. Howard, Henderson County, Ky.

"For a number of years I have contended that beekeepers cannot undersell the grocers and get away with it. The price honey is bringing today in the wholesale markets proves it. As long as beekeepers retail honey at half or less than half of what the grocers sell for, they must not complain that they are not getting enough for their honey. Cut prices will do two things: first, it will decrease consumption because the consumer will not buy from the stores after the cheap honey is gone, provided the cheap honey was satisfactory; second, at once it creates suspicion as to the purity of the honey."—John C. Bull, Valparaiso, Ind.

THIS Home paper is to be a sequel to the one in the July number. In olden times we read of people being possessed of devils. In fact, there is more or less said about demoniacal possession thru all the four gospels. Skeptics and infidels have made sport of it; and I confess that, when I first began to "search the Scriptures," after the dear Lord had lifted me from the "sinking sand," one of my troubles was in regard to this same matter. However, I very wisely went to my good pastor, and told him I was specially troubled about the devils going into the swine. He looked at me smilingly and said:

"My dear friend, do you think you are the first one to be troubled in regard to this incident?"

"Why, Mr. Reed," said I, "have other folks felt about it as I do?"

He went to his library and took down a large volume entitled "Demoniacal Possession," and remarked that, if that big book was not sufficient, there were a number of other volumes on that subject. Then he advised me to let the matter drop until I had gone a little further in my religious life, and I am very glad he did so.

Well, dear friends, it has been impressing itself upon my mind for some years back that being possessed of a demon or demons is *not* entirely a thing of the past. It would seem that right now almost every daily paper has an account of one or more poor deluded men who have been shooting their wives or somebody else, and then turning the revolver on themselves. Every time I read such an account I say to myself, "This poor soul was either possessed of a devil or something very much like the devils spoken of in Holy Writ." It would seem that the poor culprit in his passion shoots his wife, or possibly his sweetheart, without really knowing or considering what he is doing; and just as soon as he realizes the extent of his awful crime he turns the weapon on himself and ends his own life. You may say the man is crazy. Well, if the matter be inquired into you will find the man or woman (or both) became crazy by *slow steps*. The devil first got hold of them in some way that seemed harmless and almost innocent; but step by step they were led

OUR HOMES

A. I. ROOT

And they brought unto him all sick people that were taken with divers diseases . . . and those which were possessed with devils . . . and he healed them.—MATTH. 4:24.

Be sober, be vigilant; because your adversary the devil, as a roaring lion, walketh about, seeking whom he may devour.—I. PETER 5:8.

Satan himself is [sometimes] transformed into an angel of light.—II. COR. 11:14.

And they come to Jesus, and see him that was possessed with the devil, and had the legion, sitting, and clothed, and in his right mind.—MARK 5:15.

the woman her husband and lived together, I believe, as man and wife, for 18 months. At the end of this time the mother began to come to her senses. She wanted to get back to her husband and children—that is, if the wronged husband would again receive her. I am not at all surprised that the *woman* was the *first* one to come to a "right mind." The railroad conductor objected. They had what might be called, for a better word, "a lovers' quarrel." In fact, after Satan got them both well under his thumb, they had frequent quarrels, and finally this conductor drew a pistol and shot her dead. Below is what he said about it:

I am sorry she is dead. She was my whole life. I don't care what they do with me now. I shot her because she threw me down. I went thru hell for this woman. I left my wife and my home. I have done everything for her, and have been true to her every second. But she gave me a dirty deal.

She jilted me without a reason last Saturday night. She told me she was done. I went to her on Monday and asked her for an explanation. She refused to give it to me.

I told her no other man ever would possess her after what I had gone thru for her. I made up my mind that no other man would get her.

What particularly impressed me was the expression, "I went thru hell for this woman," and he probably had it about right; and nobody can tell what "hell" he is *now* going thru while I write these words. I am going to try to get this, when in print, before him; and I am going to try, also, to point him "to the Lamb of God that taketh away the sin of the world," even tho he *is* a murderer; and even tho he has trampled under foot perhaps a string of God's holy commands, there is yet hope for him. I will point him to the passage which says, "Thy sins be as scarlet, they shall be as white as snow; tho they be red like crimson, they shall be as wool."

John B. Gough, we are told, was once passing an inebriate lying in the gutter in a drunken stupor. He turned to a friend of

on until chains of iron seemed to entwine them.

In the Cleveland *Plain Dealer* for Aug. 19 we are told of a married man—in fact, a conductor on the Cleveland & Pittsburg railroad—who gradually became infatuated with a married woman, both parties having children of their own. The infatuation went so far that the man left his wife and

his and said, pointing with his finger, "But for the grace of God, there lies *John B. Gough*." And now, dear friends, when I saw that story about that railroad conductor, I felt like saying, "But for the grace of God, there lies *A. I. Root*."

"Jane Doe" gave us a lot of caution in regard to the things that bring about just such tragedies as the one I have mentioned. She was talking to young girls, or unmarried women. I suppose her warnings could, of course, apply to married women and even to the heads of families as well as to the unmarried. It is common, this world over, for young men and women—yes, for boys and girls—to form acquaintance. Away back in my schooldays when I recited a lesson well I used to look for and expect an approving glance from a certain bright girl of about my age. I loved my schoolma'am's—I think I may say all of them. An encouraging smile from those good women was an incentive thru all my life. Now, all these things are right and proper; but after the man or woman enters matrimony each should realize the sacredness of the marriage contract—no more of what the world calls "flirtations."

I said at the close of another Home paper that a married man should be kind and courteous and pleasant to all girls and women; but he should make it his aim to be very careful to try to treat all alike. There should be no discrimination. The girls and women of the present day perhaps are doing more to make themselves attractive than they ever did before, and that is right and proper. Our lives are made brighter and happier by seeing pleasant girls and women nicely dressed, just as our lives are made pleasanter and happier by the beautiful flowers that God has given us for our enjoyment. God has wisely planned the wonderful and powerful attraction between the sexes in order that the human race may be perpetuated. But Satan gets in right there. When so many new styles and bright colors are brought in play to attract admiring glances from men folks of all ages, there is great danger of there being *too many* admiring glances, and also danger on the part of the young girls who plan to attract men by their smiling faces and repeated glances. In this way great harm may be done, altho scarcely a word is spoken. Old gray-haired men, especially if they happen to be well to do in this world's goods, are some of the worst sinners; and I do not know but a "gray-headed sinner" is about the worst kind of sinner we have. Witness the millionaires who have put away the faithful old wife in order to make room, perhaps, for some celebrated "actress." Who can describe the awful anguish of a faithful wife when she discovers that some unprincipled chit of a girl is leading her husband away from her, away from his religion, and away from his God. Stealing money is bad, especially the

money that has been earned thru many years by honest toil; but stealing the affections of a married man or those of a married woman is a thousand times worse than stealing money.

In closing, my favorite text comes vividly to mind, especially as it applies to married men and perhaps to women, too, along the line I have been talking about:

"Let the words of my mouth, and the meditation of my heart be acceptable in thy sight, O Lord, my strength and my Redeemer."

A TRIBUTE TO THOSE GONE BEFORE US.

"Order [and Accuracy] Heaven's First Law."

I am sure the readers of Gleanings will all agree with me that Grace Allen's review of the beekeepers and beekeeping of years gone by is something for which she deserves our devout thanks. Her article in the August number, and also its continuation in the September issue, is what I allude to. What particularly called my attention to the matter is her kind words for myself on page 569, especially when she mentions "standardizing hives."

When my attention was first called to bee culture by that swarm of bees flying overhead, I was a watchmaker and jeweler, or, perhaps, more accurately, a watch-repairer and jeweler. If I remember correctly, the episode in regard to the swarm of bees occurred just about the time the American Watch Co. of Waltham, Mass., started to make watches. Before that time, when something gave out in a watch the repairer had to make it himself or buy something that came as near to it as possible, requiring a laborious fitting to make it answer. The American Watch Co. started out with the new idea of being able to furnish at a moderate price any part of a watch that would go right in and fit exactly, and they did it. I was just rejoicing at this wonderful achievement when I caught on to the way bees were kept and the way hives were made away back in those days. By the way, I wondered all along thru those valuable papers from Grace Allen how it was possible for the dear woman to get hold so *accurately* of things that happened before she was born. Well, when I first caught a glimpse of things, there were movable-frame hives of course, but it never seemed to have occurred to anybody that hives and frames should be made, like American watches. There were the Gallup frame, about 11 inches square, and the American frame a foot square; and Adair had another frame; Prof. Cook still another; Quinby, after he adopted frames, had still another. I gave diagrams and dimensions of all these frames, and then urged beekeepers, before it went on any longer, to decide on one frame and then have all the hives and frames, in the United States at least, so that they would be interchangeable; but

the more I stirred things up, the more jangle there was. There were Jasper Hazen's hive, Mrs. Cotton's hive, the Twining hive, and, dear me! what an array! Just think of it! When somebody died and his bees were sold at auction, even if he had movable-comb hives, the purchaser would find that he was obliged to have two sizes of frames in his apiary. I was foolish enough in those days to decide on the American hive, and bought an "individual right" for Medina County. Shortly after, I got in touch with Samuel Wagner, then editor of the American Bee Journal, and he urged me to adopt the Langstroth frame, even if I did have a "county right." I think he further added that if I did not do it right away, at the time, I certainly would when I got further along in bee culture. Then I studied Langstroth and made his acquaintance, and arranged for a visit that I might get his reasons for adopting the frame he had decided on. Then I asked him to make me a frame exactly as he would have it. It happened to be 17 $\frac{7}{8}$ x 9 $\frac{1}{2}$. Then I gave my reasons in Gleanings, and had steel gauges made, both for the size of frame and the size of hives. Of course, I had much opposition. At a convention held in Cincinnati, at which Langstroth, H. A. King, Gallup, Adair, Muth, and others were present, when they were having a racket and turmoil about their respective *patents* on hives and frames I got up and said something as follows:

"My good friends, the time is coming when there will be no patent on hives. The time is coming when all that is needed for a hive will be a plain box without top or bottom; and when the hive is full of bees and honey, similar hives will be set on top of it, and so on as may be needed."

I do not know whether my imagination went so far, just then, as to contemplate hives and crops of honey to the extent that the hives would be piled on top of each other (*filled with honey*, until a stepladder was needed), as we recently illustrated in Gleanings. I think that my suggestion at that convention was laughed at as something too ridiculous to be listened to; for at that time the Patent Office was burdened with models of patented hives, and the greater part of them without any movable frames at all. May the Lord be praised that we have lived to see hives and frames made by different manufacturers all over the world, and the most of them, like the American watches, made so accurately that, no matter where you purchase, the frames you buy will work nicely with the hives you already have in use.

I just made inquiry, and find that The A. I. Root Company now advertise only two sizes of frames—the Langstroth, and what they call the "Jumbo" Quinby frame, the one used by the Dadants.

By the way, after what I said in Cincinnati I went home and made what I called

the "Simplicity" beehive; and I think that, for a time, I used a cover, that was also made to do service as a bottom-board; but later on the latter, altho it *could* be so used, did not seem to be advisable. I also invented, or perhaps I had better say, suggested, hand-holes cut in the hives with a wabbling saw so they could be more readily lifted and moved about.

Blueberries in New Jersey, Blueberries in Florida, and Blueberries in Alabama.

The question is just now coming up from different directions as to whether the blueberries in the North are the same as or very similar to those in the South. In regard to this our good friend Elizabeth White writes as follows:

My dear Mr. Root:

Mr. Coville, Botanist of the U. S. Department of Agriculture, who has oversight of the trial grounds at Whitesbog, has visited Mr. Sapp's blueberry fields in Florida. He tells me that the variety there is *Vaccinium virgatum*, while our blueberries are *Vaccinium corymbosum*. The corymbosum does not grow as tall as the southern blueberries, but the wild bushes at maturity are from five to ten feet high. All the plants in our fields are much too young to have reached their maximum height. While our blueberry plants do not grow as tall as the southern varieties, our berries are considerably larger—very much above one-half inch in diameter.

Elizabeth C. White.

New Lisbon, N. J., May 16, 1921.

Our readers will notice that reference is made to Dr. Coville. His name is also mentioned in our August and September issues as the one who first discovered that an acid soil is necessary for the blueberries; and Dr. Coville has also the credit of producing the choice large blueberries known at present, by crossing the best varieties growing wild, and growing plants from the seeds. In view of the above I take great pleasure in submitting the letter below from Dr. Coville:

Blueberry cuttings are not easily rooted. We have developed, however, certain special methods of rooting them, which are in operation here at Washington on a small scale and at Whitesbog, near Browns Mills, New Jersey, on a large commercial scale by Miss Elizabeth C. White. These methods are described in "Directions for Blueberry Culture," 1921, now in press and expected to be issued within a few weeks. I shall be glad to send you a copy.

The rooting of blueberry cuttings requires very close and continuous attention thruout almost the whole year. If one is not so situated that he can give the cuttings this close attention it is better to propagate by the processes of layering and stumping, which are also described in the bulletin.

The plantation of H. A. Sapp, Crestview, Florida, is extremely interesting. He has transplanted with great success selected native blueberry plants which grow to very large size. I measured one of the older plants in his plantation, which he estimated as 15 to 20 years old, which was over 12 feet high, and another one which was over 13 feet high. Their spread was nearly as great as their height. They are too tall in fact for economical picking.

Unfortunately for the interest of the general public Mr. Sapp's well-merited success is in process of exploitation by promoters who are selling blueberry plants and blueberry plantations under misleading advertisements. I found Mr. Sapp himself a very trustworthy and reliable man.

Our Department of Agriculture selected blueberry hybrids, some of which bear berries three-

quarters of an inch in diameter, fruited in New Jersey from hybrid seedlings raised at Washington. Their berries are very much larger than any of the native Florida blueberries. We do not know whether these hybrids, which are of northern parentage, will do well in the climate of Florida, for they require a period of two to three months' winter chilling at a temperature of 40 degrees or less. I am sending you today a pamphlet entitled "The Influence of Cold in Stimulating the Growth of Plants," in which this important principle is described.

Very truly yours,

Frederick V. Coville,

Washington, D. C., Aug. 27, 1921. Botanist.

The pamphlet alluded to in the above letter is a beautiful little book of perhaps 40 pages, illustrated with many blueberry cuts, entitled "The Influence of Cold in Stimulating the Growth of Plants." It refers particularly to Dr. Coville's experiments with the blueberry, and it proved to be of exceeding interest to me, as I have for years past been studying the influence of cold in bringing on a resting period for plants that they may start with vigor in the spring. Some years ago we did quite a business in shipping rhubarb plants down to Florida; but unless we had quite a freeze here in the North before the plants were taken up it was not a success. Blueberries must have a resting period, and they must be submitted to a certain degree of cold—that is, here in the North—before they will start with vigor; but Dr. Coville has discovered that there is no particular need that the roots be frozen nor even chilled. A plant kept in a greenhouse all winter will not start, or at least only very imperfectly, in the spring; but if a single branch or limb of this plant or tree be allowed to reach outside and get to freezing and thawing, it will grow all right. Before the plant can start with vigor in the spring the starch in the woody structure must be converted into sugar; and the alternate freezing and thawing does this. Dr. Coville does not allude to the maple-sugar business; but sugar-makers all know we must have a certain degree of cold before the maple tree yields its sap, and particularly the sweet sap that makes the delicious sugar and syrup.

The blueberry, like most other fruit-bearing plants, is a honey plant. Dr. Coville, in speaking of this matter, and of the conversion of starch and sugar in a growing plant, says something in the book I have been speaking of as follows:

When this exudate of sugar occurs in flowers it is known as nectar, and it serves a useful purpose to the plant by attracting sugar-loving insects which unconsciously carry pollen from flower to flower and accomplish the beneficial act of cross-pollination. But sugar solution is often exuded outside the flower, in positions, or at times, that preclude any relation to cross-pollination. For example, a blueberry plant during its rapid growth, when a leaf has reached nearly full size, is sometimes observed to exude drops of sugar solution from certain glands of the leaf and on the back of the midrib.

The price of this pamphlet that pleased me so much is 30 cents. Address the Superintendent of Documents, Government Printing Office, Washington, D. C.

Here is something from our good friend Wilmon Newell, Dean of the Florida Experiment Station, Gainesville, Fla.:

Dear Mr. Root:

Huckleberries are cultivated quite extensively in the vicinity of Crestview and De Funiak Springs in the western portion of the State. A Mr. Sapp of Crestview has been growing the tree huckleberry for nearly 20 years and has cultivated plants that are from 12 to 20 years of age. These cultivated trees, according to our district agent, H. G. Clayton, are producing very well indeed. The fruit is about as big as one's little finger, and a quite ready market has been found thus far for the product. It is said that one tree now 18 years of age has produced as high as 32 quarts of the berries. The price received for them was from 15c to 20c a quart.

The cultivation of this plant in that part of the State has been sufficiently successful so that others are going into it and putting out orchards of this plant.

One of the very interesting things about this variety is that it is a native shrub in the swampy hammocks of west Florida, and this is where the people of that community got their start with it. I also understand that the nursery at Oldsmar, to which you refer, got their stock from Mr. Sapp at Crestview, who in turn got his from the woods. It seems that the favorite place in the woods for these shrubs is around the margins of pine "islands," which occur in the swampy hammocks.

So far as we can learn, no particular attention has been paid in that part of the State as to whether or not the plants are planted on acid soils. No attention seems to be paid to this phase of the question at all, yet the plantings that have thus far come into fruiting seem to be doing all right.

Wilmon Newell.

Gainesville, Fla., July 29, 1921.

In regard to Alabama we have had just one report as follows, and this is from a lady; and as our good friend Elizabeth White was the first to introduce cultivated blueberries in the North, it is quite fitting that a woman should be the pioneer in the work in Alabama:

Could you advise me of any one who can use upland huckleberry plants? I have three different varieties. These are (1) the extra large blueberry, (2) the medium-sized blueberry, and (3) the medium-sized blackberry. All are delicious for pies, desserts, etc. The berries are in full prime during the month of June in southern Alabama. I can ship plants from now until February at any date.

(Mrs.) S. A. Bradshaw.

Luverne, Ala., Route No. 4, Aug. 8, 1921.

In regard to your letter of Aug. 13, berries are all gone now. They are in prime during the months of June and July. No doubt but that they are just like what you had pictured in August Gleanings.

No. 1, extra large blueberry, grows from 1 to 3 feet high, and has large clusters of berries. Nos. 2 and 3 grow from 12 to 18 inches high; rather low bushy varieties; have small clusters, from 3 to 6 berries to cluster, but really bear more berries than No. 1.

S. A. Bradshaw.

Luverne, Ala., Rt. 4, Aug. 27, 1921.

Mrs. Bradshaw's advertisement will be found in our advertising columns.

As inquiries are coming already as to where the plants can be obtained, I am glad to tell you that my "long-time friend," E. N. Reasoner of the Royal Palm Nurseries, Oneco, Fla., is now prepared to furnish the plants. In answer to an inquiry he has just written me as below:

Dear Mr. Root:

We will have the Orchard Tree Blueberry, direct from Mr. Sapp, for winter planting, at 50c each, \$4.50 per 10, or \$40 per 100, in good strong stock. Oneco, Fla., Aug. 27, 1921. E. N. Reasoner.

Classified Advertisements

Notices will be inserted in these classified columns for 30c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISEMENTS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued when they are in good standing.)

Herman McConnell, H. N. Major, I. F. Miller, A. S. Tedman, W. B. Crane, Leroy Lloyd, E. L. Lane, Noah Bordner, Daniel Johnson, Heard & Woodhull, Fairmount Apiary, J. W. Romberger, J. D. Kroha, Curd Walker, J. F. Michael, W. W. Talley, Ross B. Scott, Hazel V. Bonkemeyer, W. T. Perdue & Sons, A. W. Yates, A. E. Crandall, D. T. Gaster, Southland Apiaries, Geo. A. Hummer & Sons, L. Parker, R. B. Grout, J. H. Haughey & Co., Julius Victor, Elmer Hutchinson & Son, E. F. Quigley & Son, Jay Smith, Robert B. Spicer, J. I. Banks, O. E. Tulip, Alfred A. Stutt, F. A. Lockhart & Co., Hardin S. Foster, Fred Leininger & Son, Jasper Knight, V. R. Thagard.

HONEY AND WAX FOR SALE.

FOR SALE—Amber honey in 60-lb. cans. P. W. Sowiaski, Bellaire, Mich.

FOR SALE—Fancy clover honey in 60-lb. cans. Jos. Hanke, Port Washington, Wis.

FOR SALE—Buckwheat honey in 60-lb. cans. Bert Smith, Romulus, N. Y.

FOR SALE—Choice white clover honey in 60-lb. cans—none finer. J. F. Moore, Tiffin, Ohio.

FOR SALE—Clover honey in 60-lb. cans. F. W. Lesser, East Syracuse, R. D. No. 3, N. Y.

FOR SALE—Buckwheat honey in 60-lb. cans, by the case or ton. J. J. Lewis, Lyons, N. Y.

FOR SALE—White and amber honey in 5-lb. pails, packed in cases of 12. R. C. Wittman, St. Marys, Pa.

FOR SALE—New York State light amber honey, two 60-lb. cases \$12.00 per case. I. J. Stringham, Glen Cove, N. Y.

FOR SALE—A ton of extracted honey suitable for baking purposes. E. D. Townsend & Sons, Northstar, Michigan.

FOR SALE—Clover, basswood, or buckwheat honey, in 5-lb. or 10-lb. pails, or 60-lb. cans. H. B. Gable, Romulus, N. Y.

FOR SALE—Finest clover honey. Packed in new 60-lb. cans and 5-lb. pails. Sample 15c. A. C. Ames, Weston, Ohio.

FOR SALE—Finest quality clover-basswood and buckwheat honey, 5, 10 and 60 lb. tins. H. F. Williams, Romulus, N. Y.

FOR SALE—A-1 diamond-clear white sweet clover honey, in new 60-lb. cans, two cans to the case, 10c a pound, f. o. b. Merville, Iowa. Virgil Weaver.

FOR SALE—Extra fine well-ripened clover honey in 60-lb. tins, two cans to the case, at \$15.50 per case. Adam Bodenschatz, Lemont, Ills.

FOR SALE—8000 lbs. choice white clover extracted honey. Sample 20c, applied on first order. C. H. Hodgkin, Rochester, Ohio.

FOR SALE—Extra fine white clover honey in new 60-lb. cans, two to the case, at \$15.00, f. o. b. Ruthven, Iowa. Martin Carmoe.

FOR SALE—Choice buckwheat honey, two 60-lb. cans to case at 10c per lb., f. o. b. here. Money refunded if not satisfied. Wm. Vollmer, Akron, N. Y.

FOR SALE—White clover honey, almost water white. Put up in new 60-lb. tin cans, two to the case. Write for prices. D. R. Townsend, Northstar, Mich.

FOR SALE—12,000 lbs. of choice white clover honey in 60-lb. cans at 15c per lb., f. o. b. Brooksville, Ky. Sample 25c. W. B. Wallin, Brooksville, Ky.

FOR SALE—White honey in 60-lb. cans, also West Indian in 50-gal. barrels. Sample and price on request. A. I. Root Co., 23 Leonard St., New York City.

FOR SALE—Extracted white or light amber honey. Good flavor for bottling purposes direct from producer. Send sample and lowest price to S. G. Crooked, Jr., Roland Park, Baltimore, Md.

FOR SALE—New crop extracted honey. Put up in new cans and cases. This honey extracted from sealed combs and is of finest quality. Also have comb honey. Gelser Bros., Dalton, N. Y.

FOR SALE—New crop finest quality white clover and basswood extracted honey in new 60-lb. tin cans, 2 cans in case, at \$12.50 for case, f. o. b. Sample 10 cents. Alice Burrows, Oran, N. Y.

FOR SALE—Extra choice extracted white clover honey, put up in 60-lb. cans and 5-lb. lithographed pails. Sample 20c. Same to apply on first order. E. J. Stahlman, Grover Hill, Ohio.

FOR SALE—Clover, basswood, or buckwheat honey, comb and extracted, by the case, ton, or carload. Let me supply your wants with this fine N. Y. State honey. C. B. Howard, Geneva, N. Y.

EXTRA fine white sweet clover honey, new crop, in 5-gal. cans, case of two cans, \$15.00; one can, \$8.00. Write for prices on a ton or a carload. Sample 10c. C. S. Engle, 200 Center St., Sioux City, Iowa.

HONEY FOR SALE—In 60-lb. tins, water-white orange, 14c; water-white sweet clover, 12c; extra L. A. sage, 11c; N. Y. State buckwheat, 10c, for immediate shipment from New York. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE—White honey, 15c a lb.; L. A. alfalfa, 14c, in two 60-lb. cans; Chilian in 165-lb. kegs, 10c; light amber honey in 50-gal. bbls., 80c a gal. Beeswax, 30c a lb. Walter C. Morris, 105 Hudson St., New York City.

FOR SALE—New crop choice clover extracted honey packed in NEW cans and cases at \$14.85 per case of two 60-lb. cans. A few cases of last year's clover honey at 10c. Write for price on 10 or more cases of new honey. J. D. Beals, Oto, Iowa.

YOU only have to buy 600 pounds of E. D. Townsend & Sons' fine clover extracted honey to get their very lowest wholesale price this year. If your customers require the best, write them at Northstar, Michigan, for their price.

FOR SALE—No. 1 white comb honey, \$6.00 per case; No. 2 white comb, \$5.00 per case of 24 sections; six cases to carrier. Clover extracted, two 60-lb. cans to case, 15c a lb.; clover in five-lb. pails, \$1.00 each, 12 pails to case. Amber baking honey in 60-lb. cans, 10c; same in 50-gal. barrels, 8c. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Several thousand pounds of the finest quality clover extracted honey. New cans and cases. None better produced. Howard Townsend, Northstar, Michigan.

FOR SALE—Extra choice extracted white clover honey, put up in new 60-lb. cans and 5-lb. pails. Sample 20c, same to apply on first order. David Running, Filion, Mich.

EXTRA fancy well-ripened clover honey in new 60-lb. tins, two cans to the case, \$16.00 per case. Write for prices on larger quantities. Sample 20c, to be applied on first order. Edw. A. Winkler, Joliet, R. D. No. 1, Ills.

CLOVER, BASSWOOD, and BUCKWHEAT HONEY. Clover in new 60-lb. cans, 10c. Buckwheat in new cans and kegs, 8c. Also buckwheat comb, No. 1, 17c in 28-box cases. Don't be late. Order now. E. L. Lane, Trumansburg, N. Y.

FOR SALE—Well-ripened clover honey, rich and thick, in 60-lb. cans, 15c f. o. b. Brooksville. Sample 15c. Also have some in 10-lb. pails at \$2.00 postpaid to third zone. Adam Kalb, Brooksville, Ky.

FOR SALE—Extra fine Michigan white clover and basswood honey. Almost water white. Indeed, I doubt if the color, body, and flavor can be beat. Put up in 60-lb. cans, two to the case, at 15c per pound, or in 5-lb. pails, 50 to the barrel, at 17c per pound. Sample 15c. O. H. Schmidt, R. D. No. 5, Bay City, Mich.

RASPBERRY HONEY, blended with goldenrod. Left on the hives until thoroughly ripened. It is good thick body, rich and delicious. Put up for sale in new 60-lb. cans. Price, 2 cans in a case, \$18.00. One can in a case, \$9.50. Sample by mail 20c, which may be applied on purchase of honey. Elmer Hutchinson & Son, Lake City, Mich.

I HAVE about 30,000 lbs. of choice sweet clover honey and to get some cash hurriedly I will sell it at 10c per pound f. o. b. Don't think anything wrong because it is cheap, for it is clear and all sealed on hives before extracting, and put up in second-hand cans that are as good as new on inside. Try it. Joe C. Weaver, Cochrane, Ala.

MY superior quality of extracted clover honey is ready for market. Produced above a queen-excluder in pure white combs. Put up in new 60-lb. cans, two cans to the case. My manner of selling this year is, place an \$13.00 order in a letter for one case of 120 lbs. When the honey arrives at your station, open it up and examine it. If it is not all that I say about it nail it up and return it at my expense and I will cheerfully return your money. "Mr. Buyer, is it fair?" 15c a pound from 1 to 1500. C. D. Townsend, St. Johns, R. D. No. 2, Mich.

FOR SALE—A carload of the very finest quality extracted honey. This crop of honey was produced above excluders, in white combs that have never been used for brood; then the entire crop was left upon the hives until some time after the close of the honey flow, so is very thoroughly cured by the bees. It is being put into new 60-lb. net tin cans, in fact, not a single thing has been neglected to make this crop of honey the finest possible to produce. It was gathered from white clover principally, with a very little basswood mixed in it, perhaps 5%. Of course, this fine honey is worth more than ordinary honey and we have to ask just a little above market price for it, so those not having a market that will pay a little more for an extra quality honey, had better not write about this year's crop of honey. E. D. Townsend & Sons, Northstar, Michigan.

HONEY AND WAX WANTED.

WANTED—Bulk comb and section honey. J. E. Harris, Morristown, Tenn.

WANTED—Honey, section, bulk comb, and extracted. W. A. Hunter, Terre Haute, Ind.

HONEY WANTED—Give particulars in first letter. Elton Warner, "Beaverdam," Asheville, N. C.

BEESWAX WANTED—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED—Extracted clover honey (new crop). State how packed. Send sample and name lowest price f. o. b. Brooksville, Ky. H. C. Lee.

WANTED—Beeswax, also old comb and cappings to render on shares. Will buy your share and pay the highest market price. F. J. Rettig, Wabash, Ind.

I AM in the market for white clover, basswood or amber honey. Send sample and quote me your lowest prices delivered f. o. b. Preston. M. V. Facey, Preston, Minn.

WANTED—All kinds comb and extracted honey and beeswax. Car lots or less—and full colonies of bees. W. C. Morris, 170 Rossiter Ave., Yonkers, N. Y.

WANTED—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, O.

WANTED—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax, and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address, so we can identify it immediately upon arrival, and make prompt remittance. The A. I. Root Co., Medina, Ohio.

WE BUY honey and beeswax. Give us your best price delivered in New York. On comb honey, state quantity, quality, size, and weight of sections and number of sections to a case. Extracted honey, quantity, quality, how packed, and send samples. Chas. Israel Bros. Co., 486-490 Canal St., New York City.

FOR SALE.

ROOT'S GOODS AT ROOT'S PRICES. A. W. Yates, Hartford, Conn.

HONEY LABELS—New designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

ROOT'S BEE SUPPLIES—For the Central Southwest Beekeepers. Beeswax wanted. Free catalog. Stiles Bee Supply Co., Stillwater, Okla.

PORTER BEE-ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies. R. & E. C. Porter, Lewistown, Ill.

FOR SALE—"SUPERIOR" FOUNDATION, "quality unexcelled." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

HUBAM, or White Annual Sweet Clover. Grow it for your bees, and get a seed crop, while the seed is scarce. Booking orders for fall delivery. E. G. Lewis Co., Media, Ills.

FOR SALE—10 Miller feeders, nailed and painted, new, the lot \$7.50; 5 Root queen-mating boxes, nailed and painted, complete, new, the lot \$7.00; 10 8-frame wood-and-zinc queen-excluders, new, the lot, \$4.00; 1 Buckeye hive Alexander feeder, new, 50c; 5 8-frame metal hive covers, good as new, the lot, \$7.00. No disease. Glenwood Beard, Prospect, Box 155, Ohio.

FOR SALE—Used 60-lb. honey cans in good condition. 10 cases for \$4.50. E. Meineke, 3852 N. Kenneth Ave., Chicago, Ills.

FOR SALE—Cowan rapid reversible extractor. Extracted only 2800 lbs., in A-1 shape. Write for price. Herman Tebbe, Dow City, Iowa.

FOR SALE—After Dec. 1 next we expect to offer beekeepers entirely reliable and guaranteed Hubam seed of best quality. The A. I. Root Co., Medina, Ohio.

SHIPPING CASES—1000 12-lb. three-row shipping cases, 2-inch glass for $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ -inch plain sections. These cases are complete, KD, packed, in crates of 50. Price per crate, \$12.50. The A. I. Root Co., Medina, Ohio.

FOR SALE—Five-gallon square cans with 1 $\frac{1}{2}$ -inch cork-lined screw cap, one can in case, 75¢, two cans in case, \$1.35. Light brood foundation in 25-lb. boxes only, per lb. 65¢. Also ten-frame hive-bodies, reversible bottoms and covers nailed and painted. Lake Region Honey Co., Birchwood, Wis.

REAL ESTATE

FOR SALE—20-acre farm, 200 colonies of bees, and equipment, $\frac{3}{4}$ acre ginseng and Golden Seal. L. Francisco, Dancy, Wis.

FOR SALE—30 acres of land near Arcadia, Fla., bungalow house with two large porches, 40 colonies of bees, more or less; 250 colonies of bees in six apiaries along the Caloosahatchee River. Fine location for honey, to ship bees or rear queens. No disease. Ward Lamkin, Arcadia, Fla.

WANTS AND EXCHANGES.

WANTED—Some seed of horsemint, also a few seeds of gallberry. P. B. Brown, Grantsburg, Wis.

WANTED—A Cowan two-frame extractor with 12-inch pockets. Address Edw. G. Saxe, Riverside, Ill.

WANTED—First editions of the writings of noted books on bees. Apply to Mrs. Fox, Foxden, Peekskill, N. Y.

WANTED—A two-frame reversible extractor, at once. State price. Van Collins, Riversville Road, Port Chester, N. Y.

WANTED—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED—To buy a carload of bees. Must be sound, on wired combs and extracted-honey outfit. Virgil Weaver, Moline, Iowa.

BEESEX wanted. Old combs (dry) and cappings for rendering. Also wax accepted in trade. Top market prices offered. A. I. Root Co. of Iowa, Council Bluffs, Iowa.

OLD COMBS, cappings, or slumgum wanted for rendering by steam press process. We pay cash for wax rendered, trade for supplies, or work it into foundation. W. T. Falconer Mfg. Co., Falconer, N. Y.

EXCHANGE—Ideal Hammond typewriter. Cost \$100 new. In perfect condition. Will exchange for two good swarms of Italian bees in ten-frame hives in strong condition. Chas. F. Hopwood, Caldwell, N. J.

OLD COMBS WANTED—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slumgum. Send for our terms and our new 1921 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

WANTED—About Nov. 15, reliable farmer capable of taking full charge of 550-acre farm in Albemarle County, Va. Good house in fine oak grove, good neighbors, convenient to several towns and State University. Attractive share arrangement for man who can do general farming and handle live-stock, poultry, fruits, and bees. Address J. H. Millsaps, 6022 Harper Ave., Chicago, Ills.

MISCELLANEOUS

FOR SALE—A 32-40 cal. Marlin repeating rifle; also a Ranger Superb bicycle. Both in first-class condition. Write for particulars. Clarence Locknow, Buskirk, R. D. No. 1, N. Y.

BOOKING orders for low bush huckleberry plants. No. 1 extra large blue, No. 2 blue, No. 3 black, at 50¢ each; \$5.00 per doz. Over 12 doz., \$4.00 per doz. Fill orders until January. Mrs. S. A. Bradshaw, Luverne, R. D. No. 4, Ala.

MEDICINAL roots and herbs are very profitable to grow. We especially recommend growing Golden Seal, which with good care will yield as high as \$10,000 per acre for each crop. It takes several years to mature but will average \$1000 a year. Special Crops, a monthly paper, tells how. Sample copy, 10¢; \$1.00 per year. Address Special Crops Pub. Co., Box "G," Skaneateles, N. Y.

BEEES AND QUEENS.

FOR SALE—Italian queens, nuclei, and packages. B. F. Kindig, E. Lansing, Mich.

HARDY Italian queens, \$1.00 each. W. G. Lauer, Middletown, Pa.

SEE our page advertisement on page 659 for prices. Buckeye Bee Co., Justus, Ohio.

WHEN it's GOLDEN, it's PHELPS. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE—50 hives of bees and 100 supers, \$150. E. C. Young, Clinton, Mich.

GOLDEN Italian queens, untested, 1, \$1.25; 6, \$7.00. E. A. Simmons, Greenville, Ala.

FOR SALE—24 colonies Italian bees at bargain prices. Edward B. Stover, Newburyport, Mass.

PHELPS GOLDEN QUEENS will please you. Mated, \$2.00; 6, \$10.00; or \$18.00 a doz. C. W. Phelps & Son, Binghamton, N. Y.

BEEES AND QUEENS from my Carolina apiaries—progeny of my famous Porto Rican pedigreed breeding stock. Elton Warner, Asheville, N. C.

THE A. I. ROOT CO. pure leather-colored queens, untested, 1, \$1.25; 6, \$7.00. Greenville Bee Co., Greenville, Ala.

FOR SALE—Bright Italian queens, \$1.50 each; \$14.00 per doz. Ready after April 15. T. J. Talley, Greenville, R. D. No. 3, Ala.

FOR SALE—A few choice queens shipped in frame brood, \$4.00 each. Jes Dalton, Bordelonville, La.

FOR SALE—20 swarms of strong, healthy Italians. Price, single-walled, \$9; double-walled, \$12. Come and see them. N. A. Clay, Oberlin, Ohio.

FOR SALE—Italian queens, package bees, and nuclei for 1922. Shipping begins March 15. Circular free. Dr. White Bee Co., Sandia, Texas.

FOR SALE—Leathery-colored Italian queens from Dr. Miller's breeder. Virgins, \$1.00; mated, \$1.50; tested, \$2.50. F. R. Davis, Stanfordville, Dutchess County, N. Y.

FOR SALE—Few more golden and three-banded queens, at 75c each; 6 for \$4.00; 12 for \$8.00. G. H. Merrill, Pickens, S. C.

FOR SALE—350 colonies of a fine strain Italian bees, fall well supplied with honey. Write for full particulars. Chas. Heim & Sons, Three Rivers, Texas.

FOR SALE—500 colonies in 4 yards, with power extractor, easy terms, near English colony. Very healthful, wonderful flows, local market. M. C. Engle, Herradura, Cuba.

FOR SALE—Three-banded Italian queens, untested, \$1.25; 6, \$7.50; 12, \$14.00. Tested queens, \$2.50 each. The above queens are all select. Robt. B. Spicer, Wharton, N. J.

1922 PACKAGE BEES AND QUEENS, untested and day-old, in Thompson safety introducing cages. Discounts on early advance orders. James McKee, Riverside, Calif.

WE are now booking orders for spring delivery of our queens and package bees. Write us your wants and ask for prices. Graydon Bros., Greenville, R. D. No. 4, Alabama.

BEES BY THE POUND—Also **QUEENS**. Booking orders now. **FREE** circulars giving details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas. E. B. Ault, Prop.

AM now ready to mail out young queens of Dr. Miller strain leather-colored Italians, by return mail at \$1.25 each. A few breeders for sale. S. G. Crocker, Jr., Roland Park, Baltimore, Md.

COLORADO QUEENS—Pure Italians. Our sunny climate and altitude produce the best there are. Write now for price list. C. I. Goodrich, breeder of fine queens, Wheatridge, Colo.

SHE-SUITS-ME queens, season of 1921. Untested Italians: After June 15, \$1.50 each, up to nine queens; 10 to 24 queens, \$1.40 each; 25 and up, \$1.25. Allen Latham, Norwichtown, Conn.

FOR SALE—45 colonies of Italian bees in 8 and 10 frame dovetailed hives with extra supplies all in first-class condition. Mrs. C. J. Beck, Bethel, R. D. No. 3, Conn. Telephone, Newton 6-12, Conn.

IF GOOD bright Italian queens are wanted by return mail, send your order to M. Bates, Greenville, Ala. Price, \$1.00 each; \$10.00 per dozen; \$75 per 100. Pure mating, safe arrival, and satisfaction guaranteed.

FOR SALE—41 colonies of bees in 10-frame hives, Hoffman frames, wired, full sheets of foundation, good condition, no disease, all or part of them, \$6.50 per colony. Richard Knorr, Palatka, R. D. No. 2, Fla.

FOR SALE—30 colonies of bees. No disease. 8-frame, \$10.00 each. 100 8-frame extracting supers, filled with foundation or drawn combs, or empty frames. 6-inch foundation mill. Hickory Shade Apiary, Otterville, Mo.

OCTOBER QUEENS—Ready to ship. Let me have the order. Untested, 85c; tested, \$1.25 each. Booking orders for package bees 1922 shipment. Two pounds bees, no queen, \$3.75. No disease. D. W. Howell, Shellman, Ga.

FOR SALE—Unsurpassed Italian queens. Untested, 1, \$1.50; 6, \$7.50; 12, \$14.00; 50, \$55.00; 100, \$105. Tested, 1, \$2.50; 6, \$13.50. My queens are actually laying before they are sent out. J. D. Harrah, Freewater, Oregon.

FOR SALE—My entire bee business, about 400 colonies of bees; about 200 supers, extractor, and outfit; one 6-room house and two lots in Fargo, Ga. One Reo speed wagon, good condition. Write for prices. W. B. Bradley, Fargo, Ga.

FOR SALE—30 colonies Italian bees, new 10-frame hives, wired, full sheets foundation, in lots to suit, \$10.00 each. Harry C. Klaffenbach, Muscatine, Iowa.

QUEENS OF QUALITY for 1922. Three-banded Italians only. After April 15, untested, \$1.25; tested, \$2.00. Satisfaction guaranteed. P. M. Williams, Ft. Deposit, Ala.

FOR SALE—50 colonies of Italian bees in 8-frame hives. Have plenty of stores for winter. \$10.00 per colony. E. L. Lane, Trumansburg, N. Y.

FOR SALE—Root's strain of Golden and leather-colored Italian queens, bees by the pound and nuclei. Untested, \$1.50 each; select untested, \$2.00; tested, \$2.50 each; select tested, \$3.00. For larger lots write. Circular free. A. J. Pinard, 440 N. 6th St., San Jose, Calif.

WE are now equipped to handle your early spring orders for package bees, and Italian queens, especially bred for the production of honey. Prices will be in accord with the reduction in material and labor. Safe arrival guaranteed. Write for prices and terms. Sarasota Bee Co., Sarasota, Fla.

FOR SALE—200 colonies of bees, in 10-frame double-walled hives; 400 supers, extractor, extracting combs, etc. A real bargain and one of the best-kept apiaries in the State. Everything in first-class shape. Must all be sold in one bunch. G. H. Creech, Central City, Nebr.

FOR SALE—12 colonies of Italian bees on Hoffman frames, wired, with full sheets of foundation. Each colony headed with an untested queen from the Stover Apiaries and to be shipped in a home-made hive without top or bottom. Price, \$10.00 for 8 frames. B. B. Jones, Lake Roland, Md.

WE are now booking orders for our three-banded leather-colored Italian bees and queens for spring shipment. 2-lb. packages only. No disease, safe arrival in U. S. and Canada and satisfaction guaranteed. Write for particulars and prices. J. M. Cutts, Montgomery, R. D. No. 1, Ala.

ACHORD'S ITALIAN QUEENS are a bit better than the best of the rest. We can supply you by return mail. Three-banded Italians only. Large, vigorous, well marked, gentle. Guaranteed to give you satisfaction. Untested, \$1.00 each; 6, \$5.50; 12, \$10.50; 25, \$20.00; 50, \$38.00. Tested queens, \$1.75 each. W. D. Achord, Fitzpatrick, Ala.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are **GREAT HONEY-GATHERERS, BEAUTIFUL, and GENTLE**. Virgins, \$1.00; mated, \$2.00; 6 for \$10.00, or \$18.00 per doz.; tested, \$5.00. Breeders, \$10 to \$20. Safe arrival guaranteed only in the U. S. and Canada. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE—400 two-story colonies of bees in first-class shape, free from disease, located in three yards. One acre land with buildings and water, and small fruit. Lease three years free goes with the bees. One crop will more than pay for the bees. Price \$3600, two-thirds cash, balance to suit. Finest alfalfa range in Colorado. Bert W. Hopper, Rocky Ford, Colo.

CALIFORNIA ITALIAN QUEENS, the old reliable three-banded stock that delivers the goods. Every queen actually **LAYING** before being caged, and fully guaranteed. I also guarantee safe arrival. **SPECIAL FALL PRICES**, select untested, 1, \$1.25; 6, \$7.00; 12, \$13.00; 25 to 99, \$1.00 each; 100 and over, 90c each. Package bees for next spring delivery. Circular free. California Apiaries, J. E. Wing, Prop., 155 Schiele Ave., San Jose, Calif.

WE believe we have the best Italian queens obtainable. Our new system is working wonders. Book your order now for 1922. Untested, \$1.25; tested, \$2.25; virgins, imported mothers, 50c. Am booking orders for 1922. F. M. Russell, Roxbury, Ohio.

QUEENS—A SUPERIOR STRAIN. Bred from a queen whose colony gathered 200 lbs. honey while the other colonies did very little. Queens, untested, \$2.00 each; tested, \$3.00. Doolittle strain; queens, untested, \$1.25; tested, \$2.00. 40 years' experience in queen-rearing. Chestnut Hill Apiary, Aspers, Pa.

EARLY spring delivery, 1922. Three-banded stock only. One Hoffman frame emerging brood, one good untested queen, one pound bees, April delivery, \$5.25 each package. Same as above, May delivery, \$4.75. 5 per cent discount on 25 packages or more; 10 per cent deposit to book your order. L. C. Mayeux, Hamburg, La.

FOR SALE—50 colonies of bees in Root 10-frame metal-covered hives, free from disease and with ample stores for winter. This is a first-class outfit for any one. All tested queens, no queens over 3 months old, and raised from the finest stock to be had. \$15.00 per colony. Can be seen any time at the yard. J. F. Garretson, Queen-breeder, Bound Brook, N. J.

FOR SALE—Package bees for spring delivery, three-band strain, bred for business. \$1.50 cash looks your order. Safe arrival and satisfaction guaranteed. A two-pound package of bees and select untested queen for \$5.00; 25 or more for \$4.75 each. Write for prices on larger lots. Caney Valley Apiaries, J. D. Yancey, Mgr., Bay City, Texas.

TO MY FRIENDS, OLD AND NEW—During our buckwheat flow we rear our best queens. Hardy, prolific, disease-resistant, honey-gathering Italian stock. We have combined color and utility and each queen guaranteed to arrive safely and give satisfaction. October prices by return mail, untested, 1, \$1.25; 6, \$7.00; 12, \$13.00; 25 for \$25.00. J. B. Holoopeter, Rockton, Pa.

FOR SALE—Spring delivery, 1922, our fine three-banded Italian bees and queens. All bees are shipped on a standard frame of honey and hatching brood. 1 lb. of bees, 1 good untested queen, \$4.25; 2 lbs. bees and queen, \$5.50; 3 lbs. as above, \$6.50, f. o. b. Hamburg. All dead bees will be promptly replaced if noted by agent on express tag. 20 per cent down to book your order. Can furnish government health certificate with each package. Will start shipping May 1. C. A. Mayeux, Hamburg, La.

PATENTS Practice in Patent Office and Court. Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building.
WASHINGTON, D. C.



Shrubs and Trees

That provide Nectar for the Bees and Fruit for the household. No Cash with order. Get our Catalog TODAY.

PROGRESS NURSERIES
1317 Peters Ave. Troy, Ohio

NEWMAN'S BRED FROM THE BEST ABSOLUTELY ITALIAN FIRST QUALITY and fully guaranteed. No disease. Satisfaction and safe arrival.
Untested, \$1.25; 6, \$7.00; 12, \$13.50. Select Untested, \$1.75; 6, \$9.00; 12, \$17.00. Circular free.

A. H. NEWMAN, Queen Breeder
MORGAN, KY.

LEWIS 4-WAY BEE ESCAPES



Four exits from supers. Fits all standard boards. Springs of coppered steel. Made of substantial metal. Price each 20c postpaid. Made by

G. B. Lewis Company, Watertown, Wis., U.S.A.
Sold only by Lewis "Beeware" Distributors.

REQUEEN YOUR COLONIES

No time is better than right now 'prepare for perfect wintering by requeening your colonies.

Use surplus brood for increase and give each colony of increase so made one of our young untested Italian queens.

One for.....\$ 1.25
Twelve for..... 14.00
One hundred for.. 98.75

Write or wire for our proposition by which we furnish honey containers free and sell your crop for cash at a small charge for our selling service that sells, and "Fosters your business."

THE FOSTER HONEY & MERC. CO.
BOULDER, COLO.

1922

Place your order now for 1922 delivery of
FOREHAND'S THREE BANDS
 The Thrifty Kind.

They are surpassed by none but superior to many.
Package Bees Three-Banded Queens

Write for prices now.

W. J. Forehand & Sons
 Fort Deposit, Ala.

ROOT'S BEE SUPPLIES

Carload stocks at Ohio's distributing center. Orders filled the day they come in. Save time and freight by ordering from
A. M. MOORE, Zanesville, Ohio
 22½ S. Third Street.

LARGE, HARDY, PROLIFIC QUEENS

Three-band Italians and Goldens. Pure mating and safe arrival guaranteed. We ship only queens that are top notchers in size, prolificness, and color. After June 1st: Untested queens, \$1.50 each; 6 for \$8.00; 12 or more, \$1.40 each; 25 or more, \$1.25 each. Tested queens, \$3.00 each; six for \$16.00.
Buckeye Bee Co., Justus, Ohio.

World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot-free, rust, lightning proof.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 183



LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.
THE EDWARDS MFG. CO.,
 1033-1088 Pike St., Cincinnati, O.

**FREE
Samples &
Roofing Book**

Our Food Page—Continued from page 635.

honey is as a breakfast sweet. When we housekeepers have guests at breakfast and have no grapefruit—in season—we feel rather cut up about it, don't we? I am no statistician, but if every housekeeper in the country felt the same way about honey I know the beekeeping industry would boom.

The Englishman likes his orange marmalade for breakfast and I think there is a growing tendency in this country to include something sweet with the breakfast; at least, I find that guests seem to take to our honey habits in the morning readily. Also I have noticed articles by other food writers who recommend honey for breakfast.

We are told so much depends upon getting the right start for the day. For that reason and because many have little appetite for breakfast it is well to serve foods that are beautiful and tempting-looking, and a section of honey or a jar of pale-gold extracted honey is as beautiful as a bowl of flowers.

When honey is served with muffins or other hot breads for simple suppers or lunches no cake or other sweet dessert is needed. It not only saves a housekeeper's time, but her family will feel better than if they have eaten a made sweet or dessert which is often rather indigestible.

Honey can be used to advantage wherever preserves or conserves are used, and again I believe the honey is much better for us than the made sweet.

And after saying all I have against the indiscriminate use of honey in baking we all know that there are certain fruit cakes, chocolate cakes, drop cakes, puddings, and cookies which are never at their best without honey, that it adds to their richness, texture, flavor, and keeping qualities, and such recipes are safe to recommend to the public.

"Best" Hand Lantern

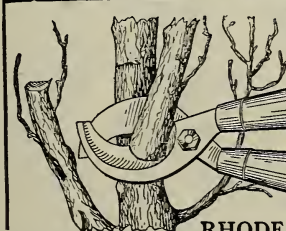


A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog.

THE BEST LIGHT CO.

306 E. 5th St., Canton, O.

RHODES DOUBLE CUT PRUNING SHEAR



Patented

RHODES MFG. CO.,

328 S. DIVISION AVE., GRAND RAPIDS, MICH.

THE only pruner made that cuts *from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door.

Write for circular and prices.

Honey Markets.—Continued from page 608.

in very limited quantities. Sales direct to retailers, in small lots Colorado, white clover, and alfalfa, 24-section cases No. 1 heavy \$7.50-8.00. Extracted: Moderate receipts of new stock from the South reported. Demand and movement limited and mostly in small lots. Few sales to wholesalers, southern, light amber various mixed flavors in 5-gal. cans 7-10c per lb., dark and inferior nominally quoted 1-1½c lower. Sales to retailers, Colorado, light amber alfalfa in 5-gal. cans 8-10c per lb., dark and inferior low as 6c. Beeswax: Receipts light. Demand and movement poor, market weaker. Sales to jobbers, southern, ungraded average country run wax, 23c per lb.

From Producers' Associations.

It is now possible to make a fairly accurate estimate of the honey crop in Colorado.

Taking the State as a whole, the production will not exceed 70 per cent of a normal crop; probably 65 per cent will be nearer right. Contrary to expectations the production of comb honey has not been materially increased; those that have switched over to extracted evidently intend to stay with it.

Demand for extracted honey in carlots is improving some, and sales have been made at from 8 to 8½ cents for white, new crop. These prices are f. o. b. loading point.

Comb honey in carlot is in good demand, and sales for well-graded stock have been made at \$5.50 for No. 1 and \$5.15 for No. 2 f. o. b. Denver.

Beeswax is coming in freely, and owing to present low prices of wax we suggest to beekeepers to hold it until prices improve.

The Colorado Honey Producers' Association,
Denver, Colo., Sept. 15. F. Rauchfuss, Mgr.

We will do well to ship half of a normal crop this fall. Our spring conditions were very unfavorable, some of our people having to feed until July 1. It was found that alfalfa weevil had spread from the Payette Valley west to Weiser, also across the Snake River into a fine producing territory near Ontario and Nyssa, Oregon. This condition reduced the honey flow from our second crop of alfalfa. It was later found that altho our fields were full of bloom that bees failed to obtain nectar.

We are now quoting new crop extracted honey at 10c, net to us, f. o. b. our shipping points. Several weeks ago we sold cars at 8½ and 9½ cents. We are not moving honey at 10c, but believe it will advance to 10c or over when buyers discover general crop shortage.

We have not had crop reports on comb honey from members and have made no quotations to date. We expect to sell at about the same schedule as we had last season, namely: Fancy, \$7.00; No. 1, \$6.75; No. 2, \$6.50. Inquiry for comb is heavy.

Idaho-Oregon Honey Producers' Association,
P. S. Farrel, Sec'y-Treasurer.
Caldwell, Ida., Sept. 15.

Special Foreign Quotations.

LIVERPOOL.—During the past month we have had a good export demand for Chilean honey, sales being 2,400 barrels at irregular prices. The stock now on hand is small. A cable from Chile says the crop is exhausted. The value of extracted honey is about 8 cents a pound. The beeswax market is about 23 cents a pound. Taylor & Co.

Liverpool, England, Sept. 6.

CUBA.—We quote honey at 40 cents a gallon, and wax \$22.00 per hundred pounds.
Matanzas, Cuba, Sept. 12. Adolfo Marzol.

OUR ADVERTISING GUARANTEE.

In the November issue of Gleanings in Bee Culture we shall publish a revised and condensed statement of our Advertising Guarantee and Conditions. We ask every advertiser in our columns and our every reader to watch for this, to read it, and to preserve it.

Managing Editor.

JENSEN'S APIARIES

BREEDER OF PURE ITALIAN BEES
AND QUEENS

CRAWFORD, R. R. 3, MISS.

Sept. 12th, 1921.

To the Beekeeping Public:

Let us forget the last chance to requeen or provide any queenless colonies with queens this year. Let us furnish them; we can, we will, and are doing it daily for those who have used our queens and found them "Infallible."

Get your name on our mailing list so we can send you our circular and price sheet occasionally to keep you informed as to what is best and cheapest, quality considered, of bees, queens, etc.

Our capacity has been greatly increased to keep pace with the growing demand for our stock.

Let us figure with you on your 1922 wants for Nuclei, Combless Packages and Queens. We guarantee to please you.

Thanking those of you who have patronized us so liberally this year, and hoping the season has turned out a bounteous harvest, we beg to remain.

Yours ever for satisfaction and service,
JENSEN'S APIARIES.
N. C. Jensen.

Too Late for Classification.

FOR SALE—Clover (light amber) and buckwheat extracted; each in 5 and 10 pound pails. Chas. Reynders, Ulster, Pa.

FOR SALE—Choice extracted white clover honey put up in new 60-lb. cans and five-pound pails. W. X. Johnston, Pt. Hope, Mich.

WANT No. 1 extracted honey at once. State price and amount you have. E. Strudel, 1461 Richard St., Milwaukee, Wis.

FOR SALE—New crop buckwheat honey in 60-lb. cans, two to the case. D. L. Woodward, Clarks-ville, N. Y.

FOR SALE—50 colonies of bees in 8-frame, 3-story hives; also 50 colonies of bees in 10-frame, 3-story hives. All are heavy with honey and bees. James Dillon, Thornton, Calif.

YOUR trade demands the best. Several tons of finest extracted honey for prompt delivery, packed right, priced right. Bee-dell Apiaries, Earlville, N. Y.

FOR SALE—20,000 lbs., 1921 crop, extracted honey in new 60-lb. tins. Fine quality white clover, 13c; light amber, 11c; amber, 10c. J. G. Burtis, Marietta, N. Y.

STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE, PUBLISHED MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

Editor, E. R. Root, Medina, Ohio; Managing Editor, H. G. Rowe, Medina, Ohio; Publisher, The A. I. Root Co.; Stockholders, holding 1 per cent or more stock, as follows: Boyden, A. L.; Boyden, Carrie B.; Boyden, Constance R.; Boyden, L. W.; Calvert, J. T.; Calvert, Maude R.; Root, A. L.; Root, E. R.; Root, H. H.; Root, Susan; Calvert, Howard R.; Trustees of Employees Pension Fund. Mortgagee holding 1 per cent or more of real estate mortgage covering New York property recently acquired, P. T. Wilson Estate. H. G. ROWE, M'ng Editor.

Sworn to and subscribed before me this 20th day of September, 1921.

H. C. WEST, Notary Public.

Every Step in Beekeeping

By Benjamin Wallace Douglass

A brand-new book based on the most up-to-date scientific information and thorough practical experience that tells how to keep bees for profit.

A book of directions, every step made clear, so that the beginner may start right and go forward without floundering. Delightfully written. Author was formerly State Entomologist of Indiana and has been a successful beekeeper for years.

Illustrated with thirty-one photographs. Price \$2.50. Sent postpaid on approval to any subscriber if the name of this paper is mentioned.

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Vermont Plaza, Indianapolis, Ind.

Northwestern Headquarters for Italian Queens

The queen is the life of the colony. You cannot afford to keep poor queens or a poor strain of bees. I have been in the bee business for more than twenty years and have made every effort to improve the honey-gathering qualities of my bees by purchase of breeders and by select breeding. I believe that my bees are unsurpassed by any. When you buy Untested Queens from me you are getting select untested queens. I will begin mailing queens about June 1.

PRICES: June 1 to October 1: Untested Italian Queen—1, \$1.50; 6, \$7.50; 12, \$14.00; 50, \$55.00; 100, \$105.00. Tested Italian Queen—1, \$2.50; 6, \$13.50.

I have no pound packages or nuclei for sale.

J. D. HARRAH
ROUTE, 1, FREEWATER, OREGON.

Southern Headquarters **Package Bees - Reliable Queens** *Three-Banded Italians Only*

WE solicit your orders for 1922 shipping. We have the stock, and the equipment, and experience necessary to handle your order, whether large or small, promptly and in a satisfactory manner. We have more than 1000 big, healthy colonies

of hustling, pure Italian bees to draw from. All packages are headed with large, vigorous young queens of our own production. You will be pleased with the stock and service we can give you.

Write for our illustrated price list.

W. D. Achord, Fitzpatrick, Alabama

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MONEY LYING IDLE or earning a small rate of interest is promoting waste. Deposit yours BY MAIL in this strong bank where it is Safe and earns 4%. Write for detailed information.

THE SAVINGS DEPOSIT BANK CO.

A.T. SPITZER, Pres.
E.R. ROOT, Vice Pres. E.B. SPITZER, Cash.

MEDINA, OHIO

Slum Gum Old Combs

worked into beeswax at 5c per pound, minimum charge \$1.00. Pay taken from wax.

Market price paid for the wax, worked into foundation, or traded for supplies.

Working Beeswax into foundation is a specialty with us.

Ship to Falconer, New York. Mark each package with your name and address both inside and outside.

Write for Red Catalog of Beekeepers' Supplies and REDUCED price list.



W. T. Falconer Mfg. Co.
Falconer, N. Y., U. S. A.

"Where the best beehives come from."

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1921 catalog send for one at once.

H. H. Jepson, 182 Friend St, Boston 14, Mass.

BARNES'

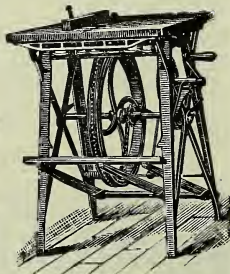
Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices.

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645 Ruby Street
ROCKFORD, ILLINOIS



Established 1885.
Write us for catalog.

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The Kind You Want and the Kind
That Bees Need

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co.'s brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Queens of MOORE'S STRAIN OF ITALIANS PRODUCE WORKERS

*That fill the super quick
With honey nice and thick.*
They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, \$1.50; 6, \$8.00; 12, \$15.00. Select untested \$2.00; 6, \$10.00; 12, \$19.00.

I am now filling orders by return mail.
Safe arrival and satisfaction guaranteed.
Circular free.

J. P. MOORE, Queen Breeder
Route 1, Morgan, Kentucky.

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Take advantage of early-order discounts by ordering NOW. We guarantee to please you. "Prompt service and the very best" is our motto. We want your beeswax and old comb. Highest cash and trade prices offered. Texas beekeepers should write A. M. HUNT, Goldthwaite, Texas.

Manufactured by
Leahy Manufacturing Company

95 Sixth St., Higginsville, Missouri
Write for FREE catalog. It is to your interest.

GOLDEN OR THREE-BAND QUEENS.

Untested, balance of season, \$1.00 each; doz. \$10.00, or \$80.00 per hundred. Virgins, 50c each, or \$40.00 per hundred. All orders filled promptly or parties notified when to expect shipment; satisfaction.

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PROMPT AND EFFICIENT SERVICE
BECAUSE—Only Root's Goods are sold.

It is a business with us—not a side line.
Eight mails daily—Two lines of railway.
If you have not received 1921 catalog send name at once.

5 REASONS WHY---

**You will want
to send us the
coupon at once**

*Money Saved Is
Money Made*

The A. I. Root Co. of Iowa,
Council Bluffs, Iowa.

Gentlemen:—Kindly name your
fall prices of the following:

1. Eight-frame hives, metal covers, complete, sets 5 KD.
2. Eight-frame bodies, with frames, complete, sets 5 KD.
3. Shipping cases, lots of.....
4. Cans, jars, pails, and second-hand 5-gal. cans.
5. Honey tanks.

Name

Address

City

State

THE A. I. ROOT CO. OF IOWA
COUNCIL BLUFFS, IOWA

To the Beekeepers Who Purchase Bees in Packages

Do not worry about *Express Charges, loss in Transit, and Delay.* We are going to do this for you.

Did you realize that a nice frame of emerging bees is equal to a pound of bees. In 1922, we will be back to pre-war price and better service.

The above is for May and June delivery, 15 per cent with order, balance 15 days before date of shipment.

2 lbs. bees, and 1 good Untested Three-banded Queen on frame of emerging bees	\$6.25
3 lbs. as above.....	7.50
2-frame nucleus with queen....	6.25
3-frame nucleus with queen....	7.25

OUR GUARANTEE.

Express paid. All dead bees promptly replaced. Government health certificate with each shipment. Simply have your Express Agent sign bad-order report and mail same to us at once. You take no chance. Order now so as not to be disappointed. Write for discount on 100 or more packages.

THE HOME OF GOOD QUEENS.

OSCAR MAYEUX
HAMBURG, LOUISIANA.

Southern Headquarters

Reliable Three-Banded Italian Queens

By Return Mail

Large, vigorous, well marked.
Guaranteed to please you. We can make deliveries to Oct. 20.

Untested

Each	\$1.00
Six	5.50
Twelve	10.50
Twenty-five	20.00
Fifty	38.00

Tested

Each	\$1.75
------------	--------

Safe arrival and satisfaction
guaranteed.

W. D. ACHORD
FITZPATRICK, ALA.

**A Superior
Quality at
Less Cost**

SUPPLIES

**A Superior
Quality at
Less Cost**

These supplies are made by the Diamond Match Co., and are of a superior quality. Hives, Supers, etc., listed below, are in the flat, and are complete with Hoffman frames, metal rabbets, and all inside fixtures.

One-Story Dovetailed Hives

Five 8-frame	\$13.50
Five 10-frame	14.30

Shallow Extracting Supers.

Five 8-frame	\$5.00
Five 10-frame	5.50

Full-Depth Supers

Five 8-frame	\$6.70
Five 10-frame	7.60

No. 1 Style Comb Honey Supers.

Five 8-frame	\$4.80
Five 10-frame	5.25

Standard Hoffman Frames.

100	\$7.20
500	33.00

Our Incomparable Quality Foundation

Medium Brood

5 lbs.	74c per pound
25 lbs.	73c per pound
50 lbs.	72c per pound

Thin Super

5 lbs.	80c per pound
25 lbs.	79c per pound
50 lbs.	78c per pound

Light Brood

5-lb. lots	76c per pound
25-lb. lots	75c per pound
50-lb. lots	74c per pound

Aluminum Honeycombs as now made by Duffy-Diehl Co. are meeting with success. We carry these in stock to supply Eastern beekeepers.

HONEY! HONEY! HONEY!

Beekeepers who are supplying Honey to a regular family trade, or who are located along the highways, and are supplying motorists, know that their customers want a honey of a uniform color and flavor. And unless the honey is at all times uniform in color and flavor, customers sometimes become dissatisfied. Our special blend of Fancy Honeys (liquid) is always uniform and is of a fine mild flavor, and will satisfy the most exacting trade.

Special Blend of Fancy Honey (Liquid)

60-lb. Tins, 2 per case.....	14c lb.
10-lb. Tins, 6 per case.....	16c lb.
5-lb. Pails (with handles), 1 doz. reship- ping cases, \$1.35 per case; crates of 100	17c lb.
2½ lb. Tins, 24 per case.....	18c lb.

Pure Vermont Maple Sap Syrup, case of 12 5-pound tins, \$14.00.

Various Grades, Crystallized, 60-lb. Tins

Water White Orange.....	14c lb.
Water White Sweet Clover.....	12c lb.
Extra Light Amber Sage.....	11c lb.
N. Y. State Buckwheat.....	10c lb.

GLASS AND TIN HONEY CONTAINERS

2½-lb. Cans, 2 dozen reshipping cases, \$1.45 case; crates of 100.....	\$ 6.50
5-lb. Pails (with handles), 1 doz. reship- ping cases, \$1.35 per case; crates of 100	8.30
10-lb. Pails (with handles), ½ doz. reship- ping cases, \$1.10 case; crates of 100	12.75
60-lb. Tins, 2 per case—NEW, \$1.30 case; USED30

White Flint Glass, With Gold Lacquered Wax Lined Caps.

8-ounce Honey Capacity, Cylinder Style,	\$1.50 per carton of 3 dozen
16-ounce Honey Capacity, Table Jar Ser- vice	\$1.40 per carton of 2 dozen
Quart or 3-pound Honey Capacity, Mason Style.....	\$1.00 per carton of 1 dozen

HOFFMAN & HAUCK, INC.

WOODHAVEN, NEW YORK

Make Your Bees Pay!

If you want bigger honey profits, get the best queens you can buy. This is the secret of successful bee-raisers. Hundreds of America's greatest honey producers order Forehand's 3-banded Italian Queens. Follow their example. Order from Forehand and be sure of satisfactory results. Backed by 28 years' successful experience in queen-breeding and honey production. Take no chances. Experimenting is costly. So certain am I that my queens will satisfy you, that I will gladly replace unsatisfactory queens delivered in U. S. or Canada, or refund your money. You be the judge and jury. Can anything be fairer?

Prices August 1st to Nov. 1st.

	1	6	12
Untested	\$1.00		\$10.00
Selected Untested	1.25		12.00
Tested	2.50	\$13.00	24.00
Selected Tested.	3.00	16.50	30.00

Bees in two-pound packages: 1 package, \$6.00; 25 or over, \$5.80; 50 or over, \$5.40; 100 or over, \$5.00, without queens.

Place your order now. Prices low, quality considered. Write for circular and discount on large orders.

N. Forehand
Ramer, Alabama

Breeder of 3-banded Italian
Queens Exclusively.



1922 PRICES

Booking Orders Now

SOUTHLAND BEES & QUEENS

Are Guaranteed to Please You



POUND PACKAGES—Shipped on Comb of Foundation

1-lb. package, with queen..	\$4.00; 25 or more.....	\$3.50
2-lb. package, with queen..	6.00; 25 or more.....	5.50
3-lb. package, with queen..	8.00; 25 or more.....	7.50

NUCLEI

1-fr. nucleus, with queen...	\$4.00; 25 or more.....	\$3.50
2-fr. nucleus, with queen...	5.50; 25 or more.....	5.00
3-fr. nucleus, with queen...	7.00; 25 or more.....	6.50

Special prices on large orders. Terms: 25% deposit to book your order.

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Lightening Service on Root Quality Supplies. Discount large orders. Shipment from here or factory. Write for catalogue.

THE SOUTHLAND APIARIES

BOX 585

HATTIESBURG, MISS.

Guaranteed Hubam Clover

Annual White Sweet Clover (Hughes Variety)

All of the annual white sweet clover seed of the 1920 crop was exhausted before May 1st. But seed of an early strain, planted in Texas after Christmas, 1920, began to reach maturity early in May. This seed is now available.

You can get it in time to test it this year. It blooms for bees in three or four months, and continues to bloom for a much longer period than most plants used for the purpose. Many beekeepers have declared it to be the greatest clover yet tried. It

combines quick growth with an unusual wealth of honey-making blooms. It is also a legume that returns a large amount of plant food to the soils. It has frequently been described editorially by *Gleanings in Bee Culture*.

Big profits are possible growing seed for your neighbors, and the farmers and beekeepers of your locality.

The price is now \$5.00 a pound. Order from the Henry Field Seed Co., Shenandoah, Iowa, or direct from the grower who guarantees.

The De Graff Food Company; Seed Dept. 303
De Graff, Ohio



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

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is now booking orders for 1922 for Italian bees and queens. Write for price list and circular. No disease. Bees inspected by State inspector.

J. W. SHERMAN
Valdosta, Ga.

FOR YOUR 1921 CROP

Comb honey shipping cases, honey cans, friction-top pails. Price on application.

Early order cash discount on sections, hives, supers, frames, comb foundation, and other goods.

Buy now and get supplies ready for 1922. Make out your list, and send for our prices.

AUGUST LOTZ COMPANY, BOYD, WIS.

IT'S HERE! WE HAVE IT!

QUALITY BEE SUPPLIES

Polished Shipping Cases

One-piece covers and bottoms,
glass, paper, and nails included.
Selling at cost prices, as follows:

24-lb. for 17 $\frac{1}{8}$ sections,
\$30.00 per 100.

12-lb. for 17 $\frac{1}{8}$ sections,
\$17.00 per 100.

Write for illustrated catalog on
our bee supplies. We are al-
ways ready to serve you.

CHAS. MONDENG

146 Newton Ave. N. and
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MINNEAPOLIS, MINNESOTA.

Beeswax Wanted

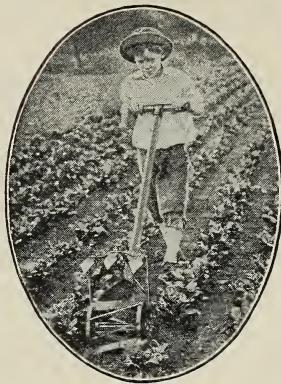
In big and small shipments,
to keep Buck's Weed-pro-
cess foundation factory go-
ing. We have greatly in-
creased the capacity of our
plant. We are paying higher
prices than ever for wax.
We work wax for cash or on
shares.

ROOT BEE SUPPLIES

Big stock, wholesale and
retail. Big catalog free.

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The Comb-foundation Specialist
AUGUSTA, KANSAS
Established 1899.



Completely Destroys the Weed Growth

More than that, the BARKER breaks
the hardest crust into a level, porous,
moisture-retaining mulch—all in the
same operation.

A ten-year-old boy can run it—do more
and better work than ten men with hoes.
Saves time and labor, the two big ex-
pense items.

BARKER WEEDER, MULCHER AND CULTIVATOR

Eight reel blades revolve against a station-
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WEED KILLER EVER USED.** Works right up
to plants. Cuts runners. Aerates the soil. Has
leaf guards, and shovels, for deeper cultiva-
tion—3 garden tools in 1.

FREE ILLUSTRATED BOOK.

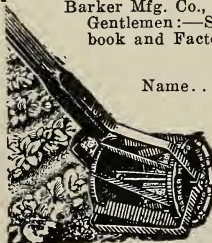
Tells how gardeners and fruit-growers every-
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yields.—How to bring growing plants through
a dry season.—How to conserve the moisture
and force a larger, more rapid growth. Send
TODAY for this free, illustrated book and spe-
cial Factory-to-User offer.

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Dept. 23.

David City, Neb.

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Gentlemen:—Send me postpaid your free
book and Factory-to-User offer.



Name.....

Town.....

State.....

R. F. D. or Box.....

13,019 QUEENS

Reared to September first with conditions extremely favorable for the production of good queens. Every colony requeened now and successfully wintered means a colony headed in the spring with a young queen of superior stock. DO IT NOW, especially if they will have time to rear a set of brood. One untested, \$1.00, 12 or more, 75c ea.

We are now booking orders for spring delivery of Superior Italian Bees and Queens.

We can furnish you from one to six car loads of full colonies of Italian bees in good hives (new if preferred)

with any kind of equipment that you might desire at the right price. Write us what you will need.

4,000 nuclei or 4,000 packages. We can supply your wants. If our prices decline prior to time of shipment, you will have the difference refunded you, but if they advance you will get your bees at the same price.

Cypress Bee Supplies.

Let us supply you with your cypress hive-bodies, bottom-boards, and covers or anything that you might be interested in. You will be surprised at both the quality and the price.

THE STOVER APIARIES, MAYHEW, MISSISSIPI

QUEENS

**FULL COLONIES
AND NUCLEI**

QUEENS

Our bees are hustlers for honey, prolific, gentle, very resistant to European Foul Brood, our customers tell us. For years we have been shipping thousands of queens and pounds of bees all over the U. S. A. and Canada. We are continually getting letters with statements such as the following: "Well pleased with your stock," "Best we ever had," "The bees we got from you are the tops (best) we have in our 225 colonies," "Bees arrived in fine shape, well pleased," etc., etc. Write for circulars giving details, etc. We are quoting a lower price for balance of the year, but will still hold up the high standard of quality.

I have a good proposition for 2 or 3 Northern beekeepers that would like to come South this fall. Write for particulars.

QUEENS AFTER JULY 1st, BALANCE OF THE YEAR:

Untested	\$1.35 each; 25 or more, \$1.00 each	1 lb. of bees..	\$2.25 each; 25 or more, \$2.13 each
Select Unt. . .	1.50 each; 25 or more, 1.25 each	2 lbs. of bees..	3.75 each; 25 or more, 3.56 each
Tested	2.25 each; 25 or more, 1.75 each	3 lbs. of bees..	5.25 each; 25 or more, 4.98 each
Select Tested..	2.75 each; 25 or more, 2.00 each	Add price of queen wanted when ordering bees.	

Safe arrival guaranteed within six days of here.

MY FREE CIRCULARS FOR 1922 SHIPPING, quoting lower prices for package bees and queens, are ready to mail. Send for one before placing your order.

One of my customers from Canada wrote he was getting an average of over 200 lbs. this year from bees bought of me last year. Another wrote he was getting 90 pounds this year from packages bought this spring.

NUECES COUNTY APIARIES

E. B. AULT, Prop.

CALALLEN, TEXAS



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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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Editor Home Dept.

H. H. Root
Assistant Editor

H. G. Rowe
M'n'g Editor

Honey Wanted Honey

We are in the market for both comb and extracted. Send sample of extracted, state how put up, with lowest price, delivered Cincinnati. Comb honey, state grade and how packed, with lowest price, delivered Cincinnati. We are always in the market for white honey, if price is right.

C. H. W. Weber & Co.

2163-65-67 Central Av.,

Cincinnati, Ohio

HONEY CANS

Several carloads just received at our Ogden and Idaho Falls warehouses. We also manufacture shipping cases and beehives. Special prices on request. "Everything in Bee Supplies." Prompt shipments.

SUPERIOR HONEY CO., OGDEN, UTAH

(Manufacturers of Weed Process Foundation.)

Indianapolis Can Give You Some Real Beekeeping Service

**WE SHIP YOUR ORDER THE SAME DAY IT IS RECEIVED. LET
US GIVE YOU SOME OF THIS SERVICE. CATALOG FOR THE
ASKING. WRITE FOR PRICES ON BEESWAX.**

THE A. I. ROOT COMPANY

873 Massachusetts Avenue, Indianapolis, Ind.

Have You Sold Your Honey?

We are buying COMB and EXTRACTED honey. Send us a sample and tell us what you have to offer. Name your most interesting price delivered to Cincinnati. Remittance goes forward the day shipment is received.

Old Comb—Don't forget we render wax from your old combs and cappings. Write us for shipping tags.

* * * * *

We Offer You Friction-Top Cans

2½-lb. cans.....	\$ 4.25 per 100	\$.50 per 10
5 -lb. cans.....	8.00 per 100	1.00 per 10
10 -lb. cans.....	12.00 per 100	1.40 per 10

1-lb. Round Screw Top Jars, 2 doz. in shipping case,

10-case lots.....\$1.60 per case.

Prices cash with order, f. o. b. Cincinnati.

* * * * *

THE FRED W. MUTH CO.

Pearl and Walnut Streets.

Cincinnati, Ohio.

IT'S HERE! WE HAVE IT!

QUALITY BEE SUPPLIES

Polished Shipping Cases

One-piece covers and bottoms, glass, paper, and nails included. Selling at cost prices, as follows:

24-lb. for 17/8 sections,
\$30.00 per 100.

12-lb. for 17/8 sections,
\$17.00 per 100.

Write for illustrated catalog on our bee supplies. We are always ready to serve you.

CHAS. MONDENG

146 Newton Ave. N. and
159 Cedar Lake Rd.
MINNEAPOLIS, MINNESOTA.

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant. We are paying higher prices than ever for wax. We work wax for cash or on shares.

ROOT BEE SUPPLIES

Big stock, wholesale and retail. Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
AUGUSTA, KANSAS

Established 1899.

HONEY MARKETS

U. S. Government Market Reports.

SHIPPING POINT INFORMATION (FIRST HALF OF OCTOBER.)

CALIFORNIA POINTS.—The honey market has been very quiet during past two weeks. Demand is falling off sharply, but prices remain firm on account of light California crop and limited supplies of light-colored honeys on hand. Supplies of amber grades fairly liberal. The lower grades of honey enter into competition with sugar to some extent; but higher grades sell strictly on their own merits as honey. Carloads f. o. b. usual terms at loading points, per lb., white orange blossom, dealers holding for 12-12½¢, white sage 11-12¢, light amber sage 7½-8½¢, old crop white sage 10½¢, light amber alfalfa 6½¢. Hawaiian, amber offered at 4½¢. Beeswax: Practically no demand nor movement. No sales reported.

INTERMOUNTAIN REGION.—Supplies of honey are still very large, altho large shipments have already rolled to eastern markets. The movement during the past month has been considerably heavier than during the corresponding period last year. Judging from the amount of inquiries received, more interest has been shown in extracted honey than at any time since the spring of 1920. The demand for comb has also been good. Extracted white sweet clover and alfalfa f. o. b. shipping points, is reported to have sold for 7-8½¢, mostly 7-8¢ per lb. in carlots, and up to 10¢ in less than carlots. White comb honey has sold at \$4.85-5.50 for No. 1 and fancy in carlots, with few sales higher, and some beekeepers receiving down to \$4.50 for No. 1 stock. Beeswax is moving slowly at around 22¢ cash or 24¢ per lb. in trade.

EAST CENTRAL STATES.—Offerings of both extracted and comb have been liberal, both to the large buyers and in a retail way. Bottling plants are working, to capacity and large quantities are going direct to the consumer. It is said that the demand for retail glass and tin containers thruout the clover belt has been the largest ever known. Colonies are reported in good shape, except for prevalence of American foul brood in some sections. In the northern portion of the section, bees have been rearing brood heavier this fall than usual, and unless they are fed many colonies will go into winter quarters light in stores. Prices show little change during the past two weeks, ranging 8-10¢ per lb. for carlots of white clover extracted, and 12-15¢ per lb. for small lots of 60-lb. cans of white clover, basswood, and raspberry. White comb, No. 1 grade, in 24-section cases, has been bought at \$4.00-4.50 per case in carlot quantities, and up to \$6.00 per case in case lots to retailers. Dark-colored and No. 2 comb sell at a dollar per case discount.

PLAINS AREA.—Due to the crop failure, honey is being shipped in to supply the demand, at good prices. It is said that westward shipments are even being made from New York State, an unusual proceeding. Local white sweet clover has been selling at 10-12¢ per lb., and white clover at 12¢. Last year's crop of white clover has been offered at 10¢ per lb.

NORTHEASTERN STATES.—The fairly good fall crop has assisted in making up for the lighter earlier honey flow. Domestic prices at large eastern consuming centers somewhat affected by low quotations on West India stock. White clover and basswood has sold in large lots at 10¢ per lb., and buckwheat at 8¢. The demand for supplies is reported as exceptionally good, indicating increased beekeeping activity next season. Bees are in good condition, except for an unusual amount of moth. American foul brood is in evidence in some sections.

SOUTHERN UNITED STATES.—The late fall flow has enabled bees to gather stores for winter, and has helped out the earlier crop failure in much of the southeast, caused by unfavorable weather conditions. Extracted sweet clover in Alabama has recently sold for 10¢ per lb. In Texas extracted honey has been moving rapidly at 9½¢ per lb. Colonies in the State are reported in normal condition. TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

BOSTON.—1 car Porto Rico via New York, 1 car California by boat, and approximately 150 cases

Vermont and 30 cases New York arrived since last report. Good demand for Porto Rico and moderate demand for other extracted stock. Comb honey in slow demand. Old crop comb nearly cleaned up, new comb lower. Comb: Sales to retailers, Vermont, 20-section cases No. 1 white clover, best fancy stock in cartons \$7.00-7.50, some light weight sections \$5.00-6.50. New York, 24-section cases No. 1 white clover \$6.00-7.00, light low at \$5.00. Extracted: Sales to confectioners and bottlers, Porto Rico, amber 75-85¢ per gal. California, white sage 14-16¢ per lb. Brokers i. c. l. sales, delivered Boston basis, California, new crop white sage 12, light amber sage 10¢ per lb.

CHICAGO.—Arrivals since last report, 1 car Idaho, 1 car Arizona, and 1 car Minnesota. Supplies liberal. Market about steady. Comb honey moving slowly but more activity reported in extracted market. Extracted: Sales to bottlers and confectionery manufacturers, Wisconsin, white basswood and clover 14¢. Michigan and Iowa, clover and raspberry white 12-13¢, light amber 11¢. Comb: Sales to retailers, Michigan, Ohio, and Minnesota, 24-section cases white clover No. 1, \$6.00-6.25; No. 2, \$4.00-5.25. Beeswax: Receipts of domestic moderate; receipts of foreign wax reported falling off. More activity to market but prices are practically unchanged. Sales to harnessmakers, ship supply houses, and wholesale druggists, Oklahoma, Missouri, and Texas, light 29-31¢, dark 26-28¢. African, light 22-24¢, dark 18-20¢. Foreign wax has wide range in quality, mostly showing heavy percentage of foreign matter.

CINCINNATI.—1 car Utah arrived since last report.

MINNEAPOLIS.—1 car California arrived since last report. Comb: Sales direct to retailers, supplies moderate, demand and movement light, market steady. Colorado, 24-section cases mixed alfalfa and sweet clover No. 1, \$7.00. Extracted: Supplies moderate. Demand and movement slow, market dull. Sales direct to retailers, Minnesota, white clover 11-13¢ per lb.; California, white orange blossom no sales, asking 17½¢ per lb.

NEW YORK.—Domestic and foreign receipts limited. Supplies limited, demand moderate, movement limited, market steady, slightly easier tendency. Extracted: Spot sales to jobbers, wholesalers, confectioners, bakers, and bottlers, domestic per lb., California, white sweet clover 9½-10¢, white sage 11-12¢, mostly 11½¢. New York, white clover 9½-10¢, buckwheat 8-8½¢, few 9¢; South American and West Indian, refined mostly 70¢ per gal. or 6-6½¢ per lb. Beeswax: Foreign receipts moderate, supplies moderate, demand and movement limited, market dull, easier feeling. Spot sales to wholesalers, manufacturers and drug trade, South American and West Indian, crude light best 23-24¢, few 25¢, slightly darker 20-22¢, dark 13-15¢. African, dark 13-15¢, few 16¢ per lb.

PHILADELPHIA.—Arrivals since last report: 1 car Wyoming and 1 car New York. Receipts moderate. Demand and movement slow, market steady. Extracted: Sales to jobbers, bakers, and wholesale grocers, Wyoming, white sweet clover and alfalfa in 5-gal. cans 9½¢ per lb. New York, white clover 9¢ per lb. Beeswax: Receipts light. Demand and movement slow, market steady. Sales to manufacturers, per lb., South American, crude light 25-26¢, slightly darker 22-23¢; African, dark 14½-15¢.

ST. LOUIS.—Light receipts of nearby comb and moderate receipts of southern extracted reported. Demand and movement improving considerably, market steady. Sales direct to retailers in small lots, comb: 24-section cases nearby and southern, light amber various mixed flavors No. 1, \$6.50-7.00 per case. Extracted: In 5-gal. cans, southern, light amber various mixed flavors 7-9¢ per lb., dark and inferior nominally 1-1½¢ per lb. less. California, light amber alfalfa mostly around 7½-8¢ per lb. Beeswax: Receipts reported very light. Movement limited and market dull on sales to jobbers basis. Market is nominally quoted at 23¢ per lb. for southern ungraded average country run.

KANSAS CITY.—Two cars Idaho arrived since last report. Supplies moderate. Demand and movement moderate, market steady on both comb and extracted. Sales to jobbers: extracted: Colorado, white alfalfa 12¢, extra light amber alfalfa 10-11¢ per lb. Comb: Nevada and Colorado, 24-section

cases No. 1 white alfalfa and sweet clover \$6.00 per case.

H. C. TAYLOR,
Chief of Bureau of Markets.

Opinions of Producers.

Early in October we sent to actual honey-producers and to some associations the following questions:

1. What is the total average production per colony to date for 1921 in your locality? Give answer in pounds.
2. How does this compare with normal for your locality? Give answer in per cent.
3. What is the condition of the colonies in your locality compared with normal as to (1) Number and ages of bees, (2) Stores for winter. Give answer in per cent.
4. What is the condition of the honey plants for next season at this time compared with normal?

5. What price are producers receiving for the new crop at their station when sold to large buyers? (1) Comb honey? Extracted honey?
6. What are prices to retailers in small lots? (1) Comb honey fancy or No. 1 per case? (2) Extracted honey in five-pound packages?
7. How is honey now moving on the market in your locality? Give answer in one word, as slow, good, rapid.

From Producers' Association.

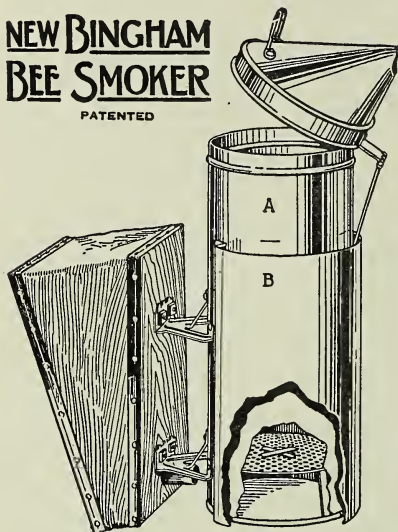
The season for honey sales opened with a rather brisk demand for comb honey and this is now steadying down to a somewhat lower price, but it looks as if all of the comb honey produced could readily be sold at a fair price.

The extracted honey situation has surely sur-
(Continued on page 721.)

State.	Reported by	Crop		Condition			In large lots		To Retailers.	
		Lbs.	Percent.	Bees.	Stores.	Plants.	Comb.	Extr.	Comb.	Extr. Movem't.
Alabama.	J. M. Cutts.	17.	40.	100.	125.	80.	\$4.80.	\$.08.	\$6.00.	\$.50. Slow
Arkansas.	J. Johnson	48.	150.	100.	100.	100.			6.00.	Good
Arkansas.	V. V. Ormond.		75.	125.	125.	100.			30.	1.10. Good
B. C.	W. J. Sheppard.	30.	50.	100.	100.	100.	7.20.	25.	1.75.	Slow
California.	L. L. Andrews.			75.	60.	100.		10.		90. Good
California.	G. B. Larian.		20.	100.	100.	100.		10.		Fair
California.	M. A. Saylor.	40.	75.	80.	80.	100.	2.88.	.06.	3.00.	.75. Good
Colorado.	B. W. Hopper.	30.	30.	80.	90.	100.	5.00.	.09.	6.00.	.80. Good
Connecticut.	A. Latham.	45.	75.	100.	100.	100.	5.25.	.17.	8.00.	1.50. Good
Connecticut.	A. W. Yates.	25.	50.	100.	100.	70.			8.00.	1.00. Slow
Florida.	C. Cook.	70.	100.	100.				15.		Good
Florida.	H. Hewitt.	40.	75.	100.	100.	100.		.08.		.85. Slow
Florida.	W. Lankin.	50.	75.	100.	100.	100.	2.16.		13.	.65. Good
Georgia.	J. J. Wilder.	10.	100.	100.	100.	100.	5.00.	.10.	6.00.	.80. Slow
Illinois.	C. F. Bender.	40.	75.	100.	100.	100.			6.00.	Fair
Illinois.	A. L. Kildow.	75.	100.	110.	100.	90.	5.75.	.15.	7.00.	1.00. Good
Indiana.	T. C. Johnson.	60.	90.	100.	100.	125.			5.50.	1.00. Good
Indiana.	E. S. Miller.	100.	100.	100.	100.	100.			6.00.	1.25. Good
Indiana.	J. Smith.	25.	50.	100.	75.	100.			8.00.	1.25. Good
Iowa.	F. Coverdale.	1.	2.	100.	75.	80.		.17.		
Iowa.	W. S. Pangburn.	17.	10.	100.	50.	100.			6.00.	.90. Good
Iowa.	C. D. Mize.	60.	60.	100.	75.	100.			6.00.	.90. Good
Louisiana.	E. C. Davis.	80.	100.	100.	100.	100.	5.50.	.06.	6.00.	.55. Slow
Maine.	O. B. Griffin.	40.	70.	90.	90.	87.	7.20.	.25.	30.	1.25. Slow
Maryland.	S. J. Crocker, Jr.	0.		100.	100.	90.	5.72.	.13.	6.00.	1.25. Slow
Massachusetts.	O. M. Smith.	50.	50.	100.	100.	100.				Slow
Michigan.	I. D. Bartlett.	65.	65.	125.	125.	100.			4.75.	.75. Good
Michigan.	B. F. Kindig.	110.	140.	100.	150.	125.	5.72.	.12.	6.50.	1.00. Good
Michigan.	E. D. Townsend.	60.	100.	100.	100.	80.		.13.		1.25. Good
Michigan.	F. Markham.	140.	140.	100.	125.	125.			6.00.	1.25. Good
Mississippi.	R. B. Williams.	50.	80.	125.	125.	100.	5.00.	.09.	5.15.	.75. Good
Missouri.	J. H. Fisbeck.	60.	100.	100.	75.	100.				1.25. Slow
Missouri.	J. W. Romberger.	12.	20.	60.	85.	60.				Slow
Montana.	R. A. Bray.	100.	90.	100.	115.	95.	5.50.	.12.	6.25.	.80. Good
Nevada.	L. D. A. Prince.			100.	40.	100.	5.00.	.03.	6.25.	.75. Slow
Nevada.	E. G. Norton.	50.	70.	100.	100.	100.		.08.		.50. Slow
New York.	Adams & Myers.	35.	50.	85.	50.	25.	5.00.	.10.	6.50.	1.00. Good
New York.	G. B. Howe.	30.	50.	110.	110.		6.00.	.15.	6.00.	.85. Fine
New York.	F. W. Lesser.	90.	100.	100.	100.	75.	5.25.	.10.		Rapid
New York.	G. H. Rea.	50.	50.	95.	100.	50.	4.50.	.09.	6.50.	1.10. Good
New York.	O. J. Spohn.	100.	80.	95.	95.	100.				Good
New York.	N. L. Stevens.	100.	125.	95.	90.	75.		.08.	5.00.	.75. Good
N. Carolina.	W. J. Martin.	25.	25.	100.	95.	100.	6.00.	.11.	7.50.	1.25. Slow
N. Carolina.	C. L. Sams.	22.	40.	100.	80.	100.	6.00.	.10.	8.40.	.60. Slow
N. Carolina.	C. S. Bumgardner.			100.	80.	100.				Good
Ohio.	E. G. Baldwin.	125.	133.	125.	125.	80.	5.28.	.09.	30.	1.00. Slow
Ohio.	R. D. Hiatt.	133.	150.	100.	80.	85.			6.00.	1.20. Good
Ohio.	F. Leiniger.	130.	100.	100.	75.	90.	4.32.	.10.	4.50.	.75. Good
Ohio.	J. F. Moore.	100.	167.	100.	100.	90.		.11.	5.00.	.95. Good
Oklahoma.	J. Heneisen.	20.	30.	60.	80.	75.				
Oklahoma.	C. F. Stiles.	10.	20.	85.	70.	100.			7.00.	1.25. Slow
Oregon.	E. J. Ladd.	70.	100.	100.	100.	90.	6.50.	.11.	8.00.	.95. Slow
Oregon.	H. A. Scullen.	30.	50.	100.	75.	80.	6.75.	.13.	7.25.	1.00. Good
Pennsylv.	H. Beaver.	80.	100.	100.	100.	80.	4.25.	.09.	4.50.	.75. Good
Pennsylv.	C. N. Greene.	35.	75.	100.	90.	95.			6.00.	.75. Slow
Pennsylv.	D. C. Gilham.	40.	100.	105.	100.				8.80.	1.40. Slow
Rhode Isl.	A. C. Miller.	10.	30.	105.	100.	100.				1.25. Good
S. Carolina.	E. S. Provost.	20.	75.	90.	90.					Good
Texas.	T. A. Bowden.	30.	50.	80.	80.	90.				.80. Slow
Utah.	M. A. Gill.	130.	110.	90.	100.	85.	4.50.	.08.	25.	.60. Good
Vermont.	J. E. Crane.	20.	40.	100.	125.	90.			6.50.	1.10. Slow
W. Virginia.	W. C. Griffith.	96.	200.	110.	110.	100.			4.00.	1.00. Good
Washington.	G. W. B. Saxton.	70.	100.	100.	100.	100.		.11.		1.10. Slow
Washington.	G. W. York.	75.	60.	80.	75.	85.	5.25.	.10.	6.25.	.95. Slow
Washington.	W. L. Cox.	30.	35.	100.	100.	100.	6.00.	.12.	7.00.	.80. Slow
Wisconsin.	N. E. France.	17.	25.	100.	75.	105.		.17.		Good
Wisconsin.	E. Hassinger, Jr.	45.	70.	100.	100.	50.		.13.		.85. Rapid
Wisconsin.	H. F. Wilson.		25.	100.	95.	100.	6.72.	.15.	7.00.	1.25. Good

Bingham's Big Smoke Smoker

**NEW BINGHAM
BEE SMOKER**
PATENTED



**Wins Contest at New York State
Beekeepers' July Meeting.**

Gilbertsville, N. Y., Oct. 3rd, 1921.

A. G. Woodman Co.:

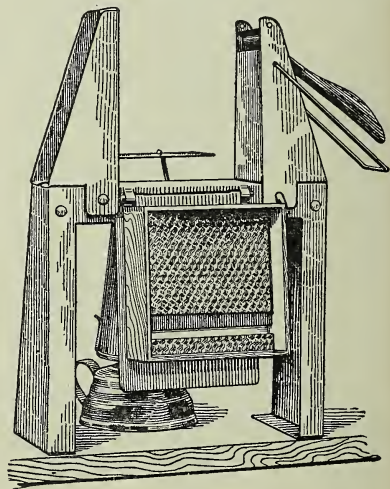
Last winter I bought a copper Big Smoke Smoker with shield of you and in July took the same to the Chenango County beekeepers' picnic and entered the Smoker contest. There were nine contestants and the Big Smoke won the prize, which was a fine queen bee. Needless to say, I was very proud of the victory. They gave us one minute, and at the expiration of thirty-five minutes the Big Smoke was the only one burning. They called it "Steam Boiler." However, it won and thought I would inform you.

C. F. Bushnell.

The contestants were allowed to use any fuel they desired and as much or as little of it as thought advisable. The contestants were given one minute in which to light their smokers, then let set for thirty minutes. At the end of this period, the one that smoked best in thirty seconds won the prize.

Buy Woodman Section Fixer

One of our men, with the Section Fixer, puts up 500 sections with top starters, in one hour and thirty minutes, 500 sections set up with top starters in ninety minutes. This includes the labor of cutting foundation, getting sections and supers and placing the sections into the supers and carrying them away. A complete job. This is nothing unusual, but his regular speed. You can do the same if you have the push after you become accustomed to the work. There is no breakage of sections. It will pay you to secure one of these machines for this work. It is the best thing of the kind on the market.



Special Sale on Honey Packages

Friction-top Pails in the 5-pound at \$7.00 per crate of 100; \$13.00 for crates of 203; the 10-pound size at \$11.30 for crates of 113. Special prices on 60-pound cans, one-gallon square cans, and other sizes.

A. G. WOODMAN CO., Grand Rapids, Michigan

A Superior
Quality at
Less Cost

SUPPLIES

A Superior
Quality at
Less Cost

These supplies are made by the Diamond Match Co., and are of a superior quality. Hives, Supers, etc., listed below, are in the flat, and are complete with Hoffman frames, metal rabbets, and all inside fixtures.

One-Story Dovetailed Hives

Five 8-frame	\$12.00
Five 10-frame	12.80

Shallow Extracting Supers

Five 8-frame	\$4.50
Five 10-frame	5.00

Full-Depth Supers

Five 8-frame	\$6.00
Five 10-frame	6.80

No. 1 Style Comb Honey Supers

Five 8-frame	\$4.30
Five 10-frame	4.70

Standard Hoffman Frames

100	\$6.50
500	30.00

Our Incomparable Quality Foundation

Medium Brood

5 lbs.	74c per pound
25 lbs.	73c per pound
50 lbs.	72c per pound

Thin Super

5 lbs.	80c per pound
25 lbs.	79c per pound
50 lbs.	78c per pound

Light Brood

5-lb. lots	76c per pound
25-lb. lots	75c per pound
50-lb. lots	74c per pound

Aluminum Honeycombs as now made by Duffy-Diehl Co. are meeting with success. We carry these in stock to supply Eastern beekeepers.

HONEY! HONEY! HONEY!

Beekeepers who are supplying Honey to a regular family trade, or who are located along the highways, and are supplying motorists, know that their customers want a honey of a uniform color and flavor. And unless the honey is at all times uniform in color and flavor, customers sometimes become dissatisfied. Our special blend of Fancy Honeys (liquid) is always uniform and is of a fine mild flavor, and will satisfy the most exacting trade.

Special Blend of Fancy Honey (Liquid)

10-lb. Tins, 6 per case.....	16c lb.
5-lb. Tins, 12 per case.....	17c lb.
2½-lb. Tins, 24 per case.....	18c lb.
Pure Vermont Maple Sap Syrup, case of 12 5-lb. tins.....	\$14.00

Various Grades, Crystallized, 60-lb. Tins

Water White Orange.....	14c lb.
Water White Clover or White Sage	12c lb.
Extra Light Amber Sage.....	11c lb.
N. Y. State Buckwheat.....	10c lb.

GLASS AND TIN HONEY CONTAINERS

2½-lb. Cans, 2 dozen reshipping cases, \$1.45 case; crates of 100.....	\$ 5.00
5-lb. Pails (with handles), 1 doz. reshipping cases, \$1.35 per case; crates of 100	7.75
10-lb. Pails (with handles), ½ doz. reshipping cases, \$1.10 case; crates of 50	5.75
60-lb. Tins, 2 per case—NEW, \$1.30 case; USED25

White Flint Glass, With Gold Lacquered Wax Lined Caps.

8-ounce Honey Capacity, Cylinder Style,	\$1.50 per carton of 3 dozen
16-ounce Honey Capacity, Table Jar Service.....	\$1.40 per carton of 2 dozen
Quart or 3-pound Honey Capacity, Mason Style.....	\$1.00 per carton of 1 dozen

HOFFMAN & HAUCK, INC.

WOODHAVEN, NEW YORK

What Dadant's Foundation

Means

Based on actual tests in our own apiaries of many hundred colonies, we have always aimed to stress those qualities in DADANT'S FOUNDATION which made for a better acceptance by the bees, better drawn combs and more satisfaction for the beekeeper.

THAT IS WHY, over FORTY YEARS AGO, when we discovered the injurious effect of acids on beeswax we revolutionized our methods of manufacture. DADANT'S FOUNDATION has always meant to the beekeeper, the very best.

AND THAT IS WHY (thru constant improvement) DADANT'S FOUNDATION still **TOPS THE HEAP** for real quality.

Every effort made, every experiment tried and every new kink in manufacture added, gives to our bees and later to yours, every advantage in combs and comb building.

Thousands of satisfied users will testify as to the results.

DADANT'S FOUNDATION

Every inch, every pound, every ton equal to any sample we have ever sent out. Specify it to your dealer. If he hasn't it, write us.

DADANT & SONS

HAMILTON, ILLINOIS

Catalog and Prices on Bee Supplies, Beeswax, Wax Working into Comb Foundation and Comb Rendering for the asking.